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# MEEHANS' MONTHLY.

A Magazine of Horticulture, Botany
and kindred subjects.

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CONDUCTED BY

## THOMAS MEEHAN,

FORMERLY EDITOR OF THE "GARDENERS' MONTHLY," AND AUTHOR OF THE "NATIVE FLOWERS AND FERNS OF THE UNITED STATES." VICE-PRESIDENT OF THE ACADEMY OF NATURAL SCIENCES OF PHILADELPHIA. BOTANIST TO THE PENNSYLVANIA STATE BOARD OF AGRICULTURE, ETC.

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Volume IV,
1894.

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ILLUSTRATED WITH COLORED LITHOGRAPHS,

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# Preface to Volume IV.

WHETHER LOVE should be classed as a selfish or unselfish affection has long been a subject for debate. There may be instances in support of both views, even in gardening. To set out a fruit tree, or to plant a vegetable seed, would be adduced in favor of the former view; while the admirer of flowers, or the lover of nature might be considered as on the border land. Shelley tells us there was

"A Lady * * * * * * *
* * * * * * * * *

She sprinkled bright water from the Stream
On those that were faint with the sunny beam;
And out of the cups of the heavy flowers
She emptied the rain of the thunder showers.

She lifted the heads with her tender hands,
And sustained them with rods and osier bands;
If the flowers had been her own infants, she
Could never have loved them more tenderly."

No return was expected from the flowers she loved.

Yet from ancient times to labor for nothing was an unpleasant experience. "*Operam et oleum perdidi*"—to lose the oil as well as the work—was indeed to have but one's labor for his pains.

The conductors of MEEHANS' MONTHLY can say, however, that they present this new volume to the reader with great pleasure. Though conscious that the lamp cannot be made to burn without oil, and that the ancient was justified in deploring the loss of his "*oleum;*" they can truly say that, aside from this practical view, the preparation of the volume has been

***"A labor of love."***

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SARRACENIA VARIOLARIS.

# SARRACENIA VARIOLARIS.

## SPOTTED TRUMPET-LEAF.

### NATURAL ORDER, SARRACENIACEÆ.

SARRACENIA VARIOLARIS, Michaux.—Leaves erect, trumpet-shaped, broadly winged, spotted with white near the yellowish summit; lamina ovate, concave, arching over the orifice of the tube, hairy and reticulated with purple veins beneath. (Chapman's *Flora of the Southern United States.* See also Wood's *Class-Book of Botany*).

The pitcher plant which we have now to consider, was first described by Michaux in his *Flora boreali Americana*, issued in 1805, so that in comparison with some of its congeners, it has but a modern history. Michaux found it "from Carolina to Florida" and gave it the name it bears, *Sarracenia variolaris*. It is derived from the Latin, *varius*, which though usually signifying varied, is used by Virgil in the sense of spotted or speckled, and *variolus* would be the diminutive, signifying a little or somewhat speckled. A glance at the end of the leaf in our plate shows the application of the name. The different forms of the leaves in the various species of pitcher plant, have always suggested odd resemblances. One old writer describes the *Sarracenia purpurea* as having a flower like a poppy, and a leaf like the flower of an *Aristolochia*. This is not a bad comparison, especially as the odor in the *Aristolochia* is so disagreeable, and that of the flowers of this species of pitcher plant little better. In the attempts to give Latin names to plants before Linnæus' time the *Sarracenias* were named *Bucanophyllum* by Plukenet, and *Coilophyllum* by Morison, the former alluding to the hollow leaves being like an ox horn; and the latter name from *coilus*, a cave or hollow, also in allusion to the hollow leaves. As already noted, however, our present species was not known in those ancient times; but it has, nevertheless, become one of the most famous in those peculiar questions which have made the whole genus so interesting. In the species which were known to botanists before this one, the water in the pitchers might be caught from the rain, because the lid at the apex was more or less erect. It was suspected, however, by the more observing, that the water was secreted by the plant itself. If they had knowledge of the present species they would have seen at once that the arched lid was an excellent umbrella for the pitcher in a rain storm. All the species catch flies, but this is one of the most successful fly-catchers of them all. Barton in his *Elements of Botany*, published in 1836, informs us of all that was known up to his time. He quotes Sir J. E. Smith as saying that "one of the gardeners at Liverpool had seen an insect drag flies to *Sarracenia adunca* (a synonym of *Sarracenia variolaris*), and with some difficulty force them under the lid or cover of the leaf, to deposit them in the tubular part, which was half filled with water; all the leaves on being examined were found crammed with dead or drowning flies." Barton remarks on this that "probably the air evolved by these dead flies may be beneficial to vegetation, and, as far as the plant is concerned, its curious construction may be designed to entrap them, while the water is designed to tempt as well as to retain them. The sphex or ichneumon, an insect of prey, stores them up unquestionably for the food of itself or its progeny, probably depositing its eggs in their carcases, as others of the same tribe lay their eggs in various caterpillars, which they sometimes bury afterwards in the ground." He adds that "Rumphius who has described and figured the plant [probably *Sarracenia purpurea*], says various little worms and insects crawl into the orifice and die in the tube, except a certain small squilla or shrimp, with a protuberant back, sometimes met with, which lives there." As Rumphius published his work in Amsterdam in 1751, it shows that observers were closely on the track of what modern observers have been inclined to claim as their own ground. Of our species especially Barton

says, "The leaves of *Sarracenia variolaris*, which is a native of the swamps of Georgia and Carolina, contain great numbers of insects. The fact is not unknown to the various species of birds, especially to the brown thrush, or French mocking bird (*Turdus rufus*), and other birds belonging to this and other genera of the order *Passerines*. It is common to see numbers of these birds collecting about the *Sarracenia*, with no other known view than to procure the imprisoned insects. They pick holes in the leaves, and then slit them for some distance, and thus readily obtain their prey. They cannot obtain their prey through the mouths of the ascidia. This fact is well attested; nor will it be deemed one of the least interesting in the history of the instincts of this class of birds." He adds, "When we consider the multitudes of insects which they (the pitchers) often contain, we may, with great propriety, call them the store-houses of the food of birds."

That the plant has been designed expressly to catch insects for its own good, is believed to be proved by the power which the plants possess of excreting a honeyed juice above the tube of the leaf, and which seems to be of no value to the plant except to allure insects to their destruction. Our present species has had an important part in the discussions that have arisen on this question, and it becomes an important matter in the history of *Sarracenia* to note the facts here. In the "Proceedings of the American Association" in 1874, Professor Riley thus states the point: "Running up the front, or ventral side of the trumpet, is a broad wing with a hardened border, parting at the top and extending round the rim. Along this border, as Dr. Mellichamp discovered, but especially for a short distance inside the mouth, and less conspicuously inside the lid, there exudes drops of a sweetened, viscid fluid, which as the leaf matures, is replaced by a white, papery, tasteless, or but slightly sweetened sediment or efflorescence; while at the smooth bottom of the pitcher is secreted a limpid fluid possessing toxic or inebriating qualities." Dr. Mellichamp, however, in a subsequent volume of the *American Naturalist* disclaims all responsibility for the statement about the inebriating quality of the secretion. He says the secretion is viscid to the touch and sweet to the taste. He cut the trumpets open and allowed flies and other insects to feed on the secretions. He has seen some feed for ten minutes, and "there was no indication at any time of either stupor or intoxication."

In regard to the living larva found by Dr. Mellichamp in the leaves of *Sarracenia variolaris*, Prof. Riley gives some very interesting accounts in the paper cited. The *Sarracenia* moth, *Xanthoptera semicrocea* "was figured many years ago by Abbott, who found it feeding on *Sarracenia variolaris* in Georgia." "It walks with impunity over the inner surface of the pitcher, which proves so treacherous to other insects." "The young larva from the moment of hatching, spins for itself a carpet of silk," and very soon closes the mouth of the pitcher. It is suggested that possibly this moth may have some duty to perform in cross fertilization. He then refers to another "grub" found among the macerated remains of insects at the bottom of the pitcher—similar perhaps to those found by Rumphius so long ago, in *Sarracenia purpurea*. This, Mr. Riley names *Sarcophaga sarraceniæ*, or the Sarracenia flesh-fly. Upwards of a dozen larva are dropped into each pitcher by the parent fly; but they eat one another, and one only, finally remains. Two or three other minute insects have been found by Mr. Riley in the pitchers, which make in all five known to brave with impunity the horrors of this death-dealing floral well. It seems rather hard that after the plant by an elaborate contrivance, catches insects, other insects which it cannot injure, should seize so large a portion of the plant's prey; but this is in keeping with much that we find in other fields of nature. Still the reflection may not be without its use by those who may study design in connection with these curious plants.

Dr. L. Peyre Porcher, believes that the plant has undoubted medical virtues; though this has been disputed by others who preceded him.

So much of special interest has been said and written about this particular species of pitcher plant, that it is impossible to cover all the ground in one chapter, as can be done with other plants illustrated. Future opportunities will be taken to complete its history.

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EXPLANATION OF THE PLATE.—Full-sized portions of a plant, grown by Mr. Jackson Dawson, at the Arnold Arboretum of the Bussey Institute, Mass.

# WILD FLOWERS AND NATURE.

## WINTER.

"Lastly came Winter, clothed all in frize,
Chattering his teeth for cold that did him chill;
Whil'st on his hoary beard his breath did freeze,
And the dull drops, that from his purpled bill
As from a limbech (alembic) did adown distill:
In his right hand a tipped staffe he held,
With which his feeble steps he stayed still;
For he was faint with cold, and weak with eld; (age),
That scarse his loosed limbes he hable was to weld." (wield). —SPENSER.

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OPUNTIA RUTILA.—Few who have not had a sight of the dryer regions of our country can have a good idea of the important part which cactuses play in floral scenery. With this appears an illustration, see page 9, gotten from a recent report made by the United States Department of Agriculture of an exploration in the Death Valley part of the great desert area. This particular species is particularly striking by its dense clothure of long slender spines. It was first discovered by Nuttall "in latitude 42°, on the Colorado of the West," who gave it its name. Mr. C. Hart Merriam, who has prepared the admirable portion of the report referring to the cactuses and yuccas met with on the expedition, speaks of it as having sometimes yellow as well as red flowers. It was found in Nevada and Utah, just entering California. The question will naturally arise as to what part this dense mat of spines plays in the economy of the plant. If the answer should be "for protection," another question, what to protect from, would follow. There are cactuses with few or no spines that might as legitimately cry for protection.

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WATER VINE OF NICARAGUA.—Under this name a correspondent of the *Public Ledger* speaks of a Nicaraguan plant: "Beneath the dense canopy of the trees in the deep forest the floral exhibit was disappointing and insignificant. They sought the tree tops where sunlight and the air was abundant and there ran riot. In March or April to look down on the tree-tops of a valley was to see a blaze of gorgeous coloring.

Among all the vines and creepers that bind the underbrush in a tough, dense mat, hemming in the traveller on all sides, the *Bejuco de aqua*, or water vine, was the one exception that was not a nuisance. This vine looks like an old manilla rope, and furnishes a cool and clear drink of tasteless water. Seizing the vine in the left hand, a stroke of the machéte severs it a foot or two below the hand and another stroke severs it above the hand; immediately a stream of water issues from the lower end, which may be caught in a dipper or in the mouth. A three foot length of vine, two inches in diameter, would furnish a pint of water."

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VARIATIONS IN THE SENSITIVE FERN.—Prof. W. W. Bailey notes: "At Little Compton, R. I., this summer I found the wildest vagaries in *Onoclea sensibilis;* not only forms that filled the bill for variety *obtusilobata*, but transitorial conditions of utmost eccentricity. The ordinary fruiting kind, as every one knows, is berry-like; but here I had long attenuated pinnæ—rolled up from the sides inward; but not lacineate, and other fruiting conditions not inrolled at all. I have at other times seen *Osmunda Claytoniana* vary in the same queer way. These monstrous forms often throw light on morphology."

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LUMINOUS FLOWERS.—It has long been placed on record that the daughter of Linnæus saw flashes of light, supposed to be phosphorescent, coming from fraxinella flowers. The list has been added to occasionally, but not to a great extent. The nasturtium is said sometimes to present this phenomenon. Some sunflowers and the French marigold have been included; and Mr. Mauriceson, of the Golden Gate Park, San Francisco, states that the Australian poppy will frequently send out flashes of light. What species of plant is intended by the term Australian poppy?

VIOLA PALMATA, Lin.—Mr. C. J. Hill, of Englewood, Illinois, notes: "The interesting note of Mr. John W. Dunlop, regarding the behavior of this plant on Racine Prairie, calls to mind my observations of it in the vicinity of Chicago. It is a frequent plant here, but far less common than the variety *cucullata* (Gray), everywhere abundant except in the dry sands, where *Viola pedata* takes its place. I have often closely studied it and the variety, having been quite skeptical about their being the same species. The two are generally found growing in the same localities, sometimes so thoroughly mingled that they crowd one another, yet with leaves so distinct as to show no intermediate forms. It was not till two years ago that I came across a few plants with both kinds of leaves on the same root. They grow in a bit of woodland at Willow Springs, where plenty of both kinds, entirely distinct as to foliage, also grew. This is the only instance in my experience with the plant. The lower and earlier leaves were of the cucullate type, the later and higher of the palmate type. Though almost universally so different in foliage, I could never find any constant distinctions in the flowers. These vary no more as between the two forms than do individuals of the same form. This is also true of the cleistogamic flowers, whose minute anatomy under the microscope showed the same parts and structure. About all that appeared to be made out was that the variety is more floriferous than the type; but this may be local or seasonal.

*Viola palmata* sometimes varies towards *V. sagittata*. This is mainly in the summer stage of the two, when the leaves become much enlarged. Then the lower part of the leaves of the *V. sagittata* may become lobed, and the sagittate basal lobes become more or less lobulate, and so closely resemble narrow-leaved forms of *V. palmata* as to quite baffle distinction. But cleistogamic flowers, if present, as they are very apt to be at this season, are a decisive test, for those of *V. palmata* are on short, horizontal or incurved stalks, usually hidden under dead leaves or half buried in loose soil, while those of *V. sagittata* are on tall, erect stalks. Sometimes the leaves of the *V. palmata* resemble those of *V. pedatifida*; but they are rarely as finely divided, and with less approach to regularity, for the lobation of *V. palmata* is exceedingly varied in pattern.

I have never observed any lack of fruitfulness of the early and complete flowers of *V. palmata* and its variety. The cleistogamic flowers do not seem to be needed for this purpose, but serve to prolong the time of productiveness. It is, however, an admirable provision of nature against any accidents that might befall the conspicuous flowers. In habitat, *V. palmata* is with us, essentially, though not exclusively, a denizen of the woods, liking a rich soil, in places a little shady. It flourishes in such localities and becomes very large in the summer. The variety *cucullata* shares the woods with it, but is less particular as to soil, and is also abundant in prairies and meadows where it comes in contact with *V. sagittata* and *V. pedatifida*, the latter almost exclusively a prairie plant.

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MIGRATION OF PLANTS.—It is the belief of many scientific men that, when the ice commenced its journey southwardly, covering so large a portion of the temperate regions of the northern portion of our globe, many of the northern plants accompanied the travels of the ice sheet. Plants which would not journey southwardly as long as the temperature remained high, took that journey when the temperature fell; but what they have not explained is, why, by virtue of the same law, they did not follow the ice on its retrocession towards the North Pole. One would suppose that there would be no more difficulty in journeying backwards than in journeying forwards, provided the conditions were the same. There are a large number of problems connected with the geography of plants that have not yet been solved. One of the most interesting facts is that nearly all Arctic plants are perennial; it is extremely rare that a species with an annual character is found among them.

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TEXAS CLOVER.—Miss Laura Bennett, of Wadesboro, N. C., notes that the *Richardsonia scabra* was introduced into south-west Georgia about thirty years ago, and has received the common name of "Texas Clover." She has seen eight acres literally covered with it. It is a very persistent weed when it once gets a foothold. Its native country is Mexico.

A Fire-Weed,—Erechtites hieracifolia.—Mr. B. F. Leeds, Jacksonville, Florida, says: "The composite fire-weed, credited by you to 'New Jersey and probably elsewhere,' *Erechtites hieracifolia*, I found growing and in flower, the 16th of December, on the site of the sometime since burnt Murray Hall, the one fine hotel at Pablo Beach. Pablo Beach, as you perhaps know, is an ocean-side warm weather resort some seventeen miles out of this city, eastwardly. The fire-weed specimens were thriving finely on a quite bare spot, and the question came to me in consequence, "Does this plant especially dislike a crowd, or is it simply a preference for cooked food rather than raw that prompts it to fall to, eat and grow on such previously scorched areas?"

A new chemical germ-stimulating combination, to be found only on fire-touched surfaces, may account for the singular habit of this one plant, or are we all abroad in our surmise or belief that the *Erechtites* only appears where fire has recently passed? More recently I found a number of these plants, a dozen or more perhaps, along the border of the King's Road, the highway, in part shell-covered, that connects South Jacksonville with Saint Augustine. An old colored man sitting in a neighboring doorway was asked whether the old grass had been burnt over the road margin in question, and his answer was that it had been within the year.

Chapman says of *E. hieracifolia*, that it is common in the South, in rich soil. A note of my own in my *Chapman's Botany of the Southern U. S.*, opposite this species, made in the spring of 1886, says "probably seen in the burnt district of Palatka, Fla."

On the outskirts of Jacksonville, and also of South Jacksonville, I have seen during the same month, *Hypoxis erecta* flowering on ground that had been fire-touched, inside of twelve months, and in one case inside of three, the star-grass being in this latter instance the only herbaceous thing in sight.

The Monthly reaches me in very nice shape, so that one can fully enjoy its fine illustrations and excellent reading matter." Why does the plant love fire?

Variations in Plants.—Botanists generally have but a faint idea of the breadth of variation common to all plants; and can only attribute a striking departure from the "normal type"—that is to say from the specimen from which the first description was drawn—as being the result of hybridization. "Supposed hybrids" abound in botanical literature. Mr. Eugene Schieffelin, of Tivoli-on-the-Hudson, has a beautiful form of the common hemlock spruce, the branches of which have a cruciate character. The leader does not drop as in ordinary hemlocks, but is stiff and erect, and it has verticils of four branches at regular intervals. Those who are familiar with hemlocks on a large scale know how wide is the variation,—this particular one of Mr. Schieffelin is, however, unique. When our botanical friends get done with naming and describing "hybrid" oaks, the hemlock offers a rich field for the extension of botanical nomenclature.

SYRINGA JAPONICA --SEE PAGE 8.

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Bear Grass.—A correspondent says that in the South *Yucca filamentosa* is known as Bear Grass, and that farmers keep a few stocks cultivated in order to use the leaves as strings so as to hang pork on, and for other similar uses. In some cases the plant throws up the flower stalks ten feet high.

SARRACENIA VARIOLARIS.—Although *Sarracenia variolaris* does not seem to have been well enough known to warrant any botanist in describing it before Michaux, and the English floral chronologies give 1803 as the date of its introduction to culture by Lee and Kennedy in England; there is reason to believe that the indefatigable John Bartram had seen it and sent it to Collinson half a century before. In Collinson's memorandums of the plants in his garden is this: "January, 1762, received from J. Bartram, one *Sarracenia* (a dwarf species)." Dillwyn who printed in 1843 the *Hortus Collinsonianus* identifies this with *Sarracenia variolaris*.

In relation to the contradictory objects often apparent in nature, as already noted in the case of the Sarracenia flesh-fly being accommodated by food apparently caught for another purpose, it may be in place also to note the fact that this species which has been regarded as the most inveterate fly catcher of the whole genus, offers less inducements in the structure of the lid of the pitcher than any others. The pitcher itself is arched, and the opening often very small. And yet it seems a part of all nature to struggle the most for that which is the hardest to get, and in this, perhaps, the more secret trap of this species was the more ingenious. What Moore says of the lover, may be as true of the insect in love with rare food. In the "Fire Worshippers" Moore says:

> "Nor wake to learn what Love can dare,
> Love, all defying Love, who sees
> No charm in trophies won with ease;
> Whose rarest, dearest fruits of bliss
> Are plucked on Danger's precipice!
> Bolder than they who dare not dive
> For pearls, but when the sea's at rest
> Love, in the tempest most alive,
> Hath ever held that pearl the best
> He finds beneath the stormiest water!"

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ORIGIN OF GUANO.—Mineral phosphates and guano are often confounded with each other. So much of these articles are used in gardening that it interests all to have an idea what it is. Navassa guano is frequently referred to. The *Independent* notices that the phosphate deposits of the island of Navassa, in the West Indies, are represented by E. V. d'Invilliers, of Philadelphia, as occurring in two terraces; the one, of gray phosphate, in a low terrace from ten to seventy feet high encircling the island; the other, of red phosphate, abounding in caves upon an upper flat, two hundred and thirty feet above the sea. The mineral occupies irregular fields or caves in a coral limestone, not extending deeper than twenty feet. This red variety contains over fifteen per cent. of iron and alumina, and probably some of the lime has been leached out. The island looks like a coral atoll. The phosphate must have been of organic origin and washed into the surface cavities, and partly or wholly derived from the droppings of birds. There are one hundred and thirty acres of the gray variety, more than half worked out; while the red phosphate, the less valuable, is much more abundant.

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LIFE IN THE DEAD SEA.—It has become to be a scientific axiom that the waters of the Dead Sea are absolutely destitute of any living vegetable or animal organism. A French investigator, M. Lortet, has now found that even this supposed great truth is wrong. He finds innumerable numbers of species of micro-organisms, and they are found to be of a very malevolent character. Animals inoculated die in a few days from the blood-poisoning brought on through the agency of these minute bodies. The river Jordan, which is so popular with pilgrims for bathing, is said to be full of these micro-organisms to such an extent as to be absolutely unfit for bathing, and for drinking water almost perilous.

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A POPULAR OREGON FLOWER.—While California is creating some envy by pointing to the great glory which *Eschscholtzia Californica* gives to that state, the people of Oregon are comforting themselves with the idea that *Gaillardia aristata* is just as proud a beautifier of their country as ever the California poppy can be for that state. Eastern people will have to look on and let the Blanket flower and the poppy, like the white and red roses, settle the dispute themselves.

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JUMPING SEED.—A number of plants have seeds which occasionally seem to have the property of leaping. It is now ascertained that this is in consequence of the motion of insects which make their home in these seeds. One kind, known as the "Mexican Jumping Bean," owes the motion, according to Prof. Riley, to an insect which he calls *Carpocapsa saltitans*.

# GENERAL GARDENING.

## THE SEAT AT THE BEECH TREE.

"On the lawn,
Beneath a spreading beech, our favourite seat,
We sat us down at last and made review
Of what was past, and sought to shadow forth
The history to come."

HOWARD WORCESTER GILBERT.

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RHODEA JAPONICA.—Mr. E. O. Orpet, South Lancaster, Mass., referring to the note in the November issue, kindly notes that the plant has been introduced into American gardens, being in Mr. Hunnewell's collection and others,—and that it proves to be a very valuable hardy plant, and an excellent thing for window culture. The scarlet, holly-like berries add to its interest.

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BENTHAMIA.—The great botanist, Bentham, has been unlucky in botanical honors. In 1828 St. Richard named an orchid in his honor, but it was finally regarded as but *Habenaria*. In 1830 Lindley again tried it, but this time it finally came to be but an *Amsinckia*. In 1833 Lindley for the second time ventured on the plant now figured from the London *Journal of Horticulture*, but the *Index Kewensis* refers the genus to *Cornus* and calls it *Cornus capitata*, before named by Wallich from the Himalayan mountains. It differs from *Cornus* in having the berries all consolidated, instead of standing out separately as our dogwoods do. Hence, the name of Lindley, *Benthamia fragifera*—the strawberry bearer. In Meehans' Nurseries, its sister, *Cornus Kousa*, has blossomed, and proves to be a valuable addition to ornamental plants. It has been known as *Benthamia Japonica*.

CRATÆGUS APIIFOLIA.—The *Garden and Forest* has had recently chapters calling attention to the great merits of American hawthorns for ornamental purposes. It is a well timed direction to a class comparatively neglected by planters. Possibly the most beautiful, certainly one of the most beautiful of the American hawthorns, is the parsley-leaved *Cratægus apiifolia*. A specimen in the Germantown Nurseries is about 35 years old. It is about 25 feet high and 20 feet in diameter, with a trunk about 18 inches in circumference. In June it is densely set with its clusters of white, slightly scented flowers,—while the finely cut leaves, turning to a beautiful crimson in fall, give it considerable attractiveness.

BENTHAMIA.

AMERICAN ROSES.—Sometimes we may profit by even a sharp criticism; and an English critic expresses surprise that with an apparent love of roses, which pervades the American people and which leads them to buy them by the hundreds of thousand and very often at a high price, very few attempts have been made by American florists to improve the rose. They have not the patience in carefully crossing which a number of the old-world rose growers exhibit,—no attempt of any account is made to raise seedlings,—and the critic calls close attention to the fact that all the so-called American roses that are popular were merely chance sports. He refers to the varieties known as Marshal P. Wilder, the Bride, Sunset, the Puritan, the Waban, and the Queen. A little fun is made of Americans about the American Beauty, which is not an American rose,—but Americans have never claimed this. It was called American Beauty simply because the original name was lost and no one knew what its real name was. It was ultimately found to be a European variety known as Madam Ferdinand Jamain,—this is conceded by American rose growers themselves, and they are perfectly willing that the credit should go to where the credit is due. Still the point is a good one, and American rose growers might possibly turn their attention to the raising of roses from seed. The standard of excellence in America is very different from that which prevails in the old world. The American rose grower does not simply want a large showy flower with some peculiar tint or shade of color,—he wants a flower with a long stem that can be cut to advantage without having to fasten an artificial stalk to it,—and he wants a variety that will bloom freely and in continual succession as well. These points have never been a want in the old world, and American needs should bring American results.

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THE CRAB GRASS.—*Paspalum sanguinale* is undoubtedly an annual, as the following from Mr. W. F. Bassett, Hammonton, New Jersey, shows.

"In your remarks on Crab grass, you ask whether it *is* an annual. There are several grasses which are called by this name, but the common Crab grass of this section, a greenhouse-grown sample of which I enclose, is an annual, without the possibility of a doubt. Many plants which are ordinarily annual, live through the winter when sown very late, but I have never known a single specimen of Crab grass to live through the winter, in the open ground, under any circumstances. But after the plants attain any considerable size, they will stand about as much digging up and overhauling, even in hot dry weather, as any I know of; and the only way to destroy it, is to hoe or cultivate very soon after it comes up. But to "give the devil his due" we must say for this and Witch grass that both make the very best of forage when young and tender, and while the latter gives, on rich soil, a very early and very heavy crop for the scythe, the latter yields the best of pasture later in summer when other grasses begin to fail."

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ANTIGONON LEPTOPUS.—A correspondent from Galveston sends specimens for a name, which prove to be of this plant. He describes it as a twining vine, dying to the ground in the winter time; but advancing during the season so rapidly that it reaches the tops of the tallest trees,—at times completely enveloping them. It is clothed with panicles of rose colored blossoms, far outrivaling in beauty the crape myrtle. It must be, from his description and the specimens which he sends, a wonderfully beautiful plant. It bears, in Galveston, the popular name of "Corona di Reina," which is Mexican for Queen's Crown,—a name which its royal beauty well deserves. Our correspondent has heard of a Mexican vine, called in that country "Rosa di Montana," that is to say Mountain Rose, which he thinks is likely to be the same thing.

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SYRINGA JAPONICA.—Every new addition to the family of lilacs is welcome in American gardens. The common Siberian forms of lilac are especially so. During the past year a species from Japan has flowered in several American collections. The flowers individually are small, but collectively they make a very large head of greenish white flowers,—sometimes over a foot in diameter. When in time plants shall have grown large they will have an unusually showy effect among hardy flowers. The engraving given on page 5, is from Dr. Dieck's catalogue, who is one of the most energetic of German introducers of new things.

FANCIED RESEMBLANCE IN TREES.—The writer was reading recently in a horticultural serial of high character, severe criticisms on the training of trees so as to represent birds, beasts, or forms of other things. In reading this no one would seem to object. Strange to say, in the same paper, was a sketch of profile rocks, which the reader was called on especially to admire. Some hillside, it was said, exactly resembled the profile of a human face, and others somewhere else had similar points to recommend them. Just why these fancied resemblances should be admired in the case of rocks and not in trees is not explainable. Everywhere these fancied resemblances draw interest. Recently, in an American magazine, was an account of the outline of a mountain near the harbor of San Vincente in the Cape Verde Islands, which is said to resemble remarkably the conventional statues of General Washington—this mountain top represents him, as it were, lying face upwards in sleep. It is said that every one visiting this part of the world goes considerably out of his way to look on and enjoy this fancied resemblance. We are not recommending that trees should be sheared into these fanciful figures, by no means, and yet it seems strange that these contradictions in our natures should exist.

IMPROVING SUGAR CANE BY SELECTION.—Mr. W. T. Thompson, of Patterson, La., inquires whether it is possible to improve the chemical characters of the Sugar Cane by plant selection,—the universal opinion being that these characters can only be effected by selection from seeds. Such high authorities as Mr. Thistleton Dyer and Mr. Daniel Morris of Kew, are quoted in favor of the latter view. It is probable that these eminent gentlemen are not as familiar with the effects of bud variation as we are on this more extensive continent. It is pretty well understood here where sports by bud variations are rather common, that the chemical characters of such variations change as easily as when variations come from seeds. With all these facts, there is no reason for believing that sugar cane may not really be improved by selecting the best and propagating therefrom.

OPUNTIA RUTILA.—SEE PAGE 3.

A Fine Specimen of the Mammoth Tree of California.—Mr. Joshua Pusey, of Philadelphia, sends a small twig for a name, which proves to be of the great Mammoth Tree of California (*Sequoia gigantea*). It is remarkable from the fact of its growing in a place now apparently neglected, from seed said to have been received from California a great many years ago. What is still more surprising, although every tree known to the writer around Philadelphia has been wholly destroyed or badly demoralized by a minute fungus, this one is distinguished by being absolutely healthy. From its unprotected condition the top of it was cut off by some vandal many years ago for a Christmas tree. Mr. Pusey describes it at present as being 5½ feet in circumference at about one foot above the ground, with a straight trunk about 10 feet to where it was beheaded,—the spread of branches is about 30 feet. The tree probably would have been 30 or 40 feet in height, but for the misfortune which befell it. It will be a matter of great interest to know the dimensions of the largest and best trees under cultivation in the East.

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The Oleander.—Notwithstanding the oleander is numbered among poisonous plants—and it is really believed that it was the flowers of the oleander and not the rhododendron that caused such trouble in the army of Xerxes—no trouble has ever been found from them in America, notwithstanding in the Southern States they are so extensively grown. Some of the English papers are endeavoring to create a sentiment against them; but all we can find to warrant this is something that happened in 1809, when it is said some Spanish soldiers used the wood for skewers in roasting meat, and a few children, many years ago, died through eating the flowers. Possibly it may be that in America children get so many things better to eat than oleanders that this may be the reason, therefore, for the general immunity of American people and children from any injury resulting from the cultivation of this beautiful plant.

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Perennial Plants.—It has recently been shown in a scientific paper that the reason why some plants appear as annuals and others as perennials, is simply because of the strain on nutrition, which annual plants make. In perennial plants there is not the same draft, and a little nutrition is left to form buds at the base, and in that way continues the same individual plant from year to year. If the annuals are prevented from maturing seeds by having the flowers cut off early, they become perennials, and make buds at the base just as those recognized as perennials do. Perennials indeed are scarcely such any more than those recognized as annuals. The potato, for instance, makes a new tuber, but all the rest of the plant dies; and this is said to be true, in the main, of all plants—even the strawberry, as there is nothing about the plant, more than one year, that is truly living.

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Rose, Wm. Allan Richardson.—This beautiful rose is far more popular in the old world than it is here, having been named in honor of Mr. W. A. Richardson, a highly esteemed amateur horticulturist, of Louisville, Ky. The climate being not so severe in that part of the world, it lives out without injury during English winters, and in some cases is used as a climber for ornamenting walls, frequently reaching to the second stories of the houses. Its golden-yellow flowers have obtained for it in that part of the world, the common name of the apricot rose, which name is unfairly supplanting the American name which justly belongs to it.

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Hardy Shrubs and Trees.—Mr. Wm. Golding tells the Royal Horticultural Society of London that the plantings of rare trees and shrubs have very much declined in England since Loudon's time. In America it has been different. The desire to plant a variety of trees and shrubs has steadily increased during that time,—till there are to-day few gardens that could not show a greater variety than some famous English places.

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Deterioration of Varieties.—Professor Bailey states that the varieties of the tomato scarcely remain distinct after a generation or two. He thinks that there is no vegetable which deteriorates so rapidly as this,—they soon loose their distinguishing characteristics. He, however, naively remarks, "It is not certain that all this variation is chargeable to the running out of the variety."

THE CODLIN MOTH IN CALIFORNIA.—When this insect first appeared among the apple trees of California a great fight was made by the destruction of trees and other repressive measures to destroy, and as the expression is, "stamp out the little creature." All these efforts have been found non-effectual. Instead of endeavoring by state laws to prevent the introduction of the insect into California, or the destruction of trees, it would have been wiser to endeavor to destroy the insect where it appeared by applications of Paris green, as we do in the East. One pound of Paris green to 160 gallons of water is the application.

CLIANTHUS DAMPIERI.—This singularly beautiful annual plant from New Zealand, has never been very successful in our country. It seems to have some tender habit which causes it to die away, either before or soon after flowering. A correspondent, Mr. Louis Vieweg, of Quedlinburg, Germany, has thought to apply the scientific doctrine of natural selection to the plant; and by successively selecting year after year those which seemed to be the hardiest, and with the least imperfection, he now claims that he has a strain which will do perfectly well in localities where the original usually failed before.

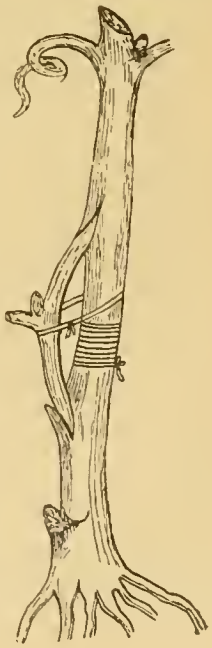
A ROSE-COLORED CALLA.—A common white calla lily, the *Richardia Æthiopica* of botanists, is well known,—as well under the name of Easter lily as calla lily. Sometime ago a yellow species was introduced into Europe from Africa, and it is now reported that a rose-colored one has been found. It is called *Richardia Lehmanni*. The flower in shape and size is very much like the common white calla; but the leaves are long and linear, being at least four times as long as broad.

KUDSU VINE.—This is a much shorter and easier name than *Pachyrhizus Thunbergianus*, or *Dolichos Japonicus*, the botanical name of a remarkably fast growing vine that has been for ten or more years in American gardens. It is a perennial, dying to the ground in winter, but will make the enormous growth of 60 feet in three months. It is of the bean family—indeed the foliage resembles somewhat that of the Lima bean. *Pueraria Thunbergianus* is its strict name.

## FRUITS AND VEGETABLES.

A VINELESS SWEET POTATO.—In the cultivation of the sweet potato, a point is to keep the trailing branches from rooting in the ground,—if these creeping branches get roots, it is so much taken from the main crop,—all the roots are comparatively small and valueless for commercial purposes. For this reason the cultivator of the sweet potato has to be continually moving among the vines,—lifting them from the ground by various methods in order to prevent these branches from sending out other roots. It is now given out that in Florida a variety has been raised which takes on the bushy form without any tendency to run or sprawl over the ground. If this be so, it ought to be one of the greatest advances made for many years. As a general rule, varieties of the bushy class are not as productive as those which take on a regular climbing character. The bushy varieties are not nearly as productive as the taller growing kinds, but the sweet potato may be an exception, as the crop is under ground.

GRAFTING GRAPES.—In the notice recently given of the death of a leading Philadelphia amateur horticulturist, Robert Cornelius, it was stated that he was the inventor of a new process for grafting the grape. The method was to take half-matured wood to operate on. The scion was wedged at both ends, and inserted like a bow in the stock. A piece of tape then tied around drew the scion tightly into the stock. Success in almost every case was absolutely perfect. Attention was recently drawn to this method by a recent paper in "Orchard and Garden." The cut is not exactly the same as originally appeared in the *Gardener's Monthly*, but it serves well to illustrate the nature of the method.



BLACK KNOT IN THE PLUM TREE.—The *Country Gentlemen*, of October the 29th, has an excellent article on the efforts made by one of its correspondents to rid his plum orchard of the black knot by cutting off the excrescences as fast as they appeared. The experiments were conducted annually from 1884 to 1891, with the result of showing that not the slightest advantage was gained by cutting off and burning these knots, as is so generally recommended. This is in accord with all that we have taught. Now that it is known that these knots are caused by the operation of a minute fungus which floats in the atmosphere until it finds a convenient stopping place, it is clear they cannot be kept from floating around by the few which we burn. This may be of value to the persons of experience who are continually watching for a chance to fight the knot. It has now become a well ascertained fact that the conditions which are suitable for the growth of these spores are so very nice, that it is to this fact more than anything else that their growth is kept by nature within the limits which we find them occupying. The best protection against the attacks of these spores is to remove or obstruct these conditions, for much more has been gained by washing the trees with some solution that is opposed to the increase of fungus spores than all one could ever do by cutting and burning up the diseased branches after the fungus has done its work.

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VARIATION IN THE QUALITY OF FRUITS.—Mrs. Frederic C. Johnson, of Hastings, Nebraska, notes: "The Ben Davis apple, as raised in the West, is of very poor quality, but in a recent trip south my husband found them far different. Those raised in southern Missouri and northern Arkansas are of excellent quality. I could hardly believe they were the same variety,—the iron in the soil giving them color, flavor and finer grain.

The only fruit that seems to adapt itself to the prairies in central Nebraska is the sour cherry,—currants and gooseberries do very well if in a shady place."

No one knows why some kinds vary so,—not even "iron in the soil" fully accounts for it. The famous Ribston Pippin apple of England is nothing but poor in any part of America; while the Williams Bon Chretien pear, usually second-rate in that country, in America, as the Bartlett, is almost everywhere on the top of the list. Again some of our own, of the highest character in one locality, are of little account elsewhere. The Newtown Pippin, which is the pride of the Hudson River region, is also superior in Western Virginia, but nowhere else.

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ORANGE CULTURE IN CALIFORNIA.—Notwithstanding the difficulty which the cultivator of the citrus tribe has found in California, by reason of scale insects and diseases, the extension of orange culture goes on at an enormous rate. The *Anaheim Gazette* states that in that vicinity, at least, 3,000 acres more have been added recently to the area already in existence. Judging by what is stated by other California papers, very little success has ever followed the many suggestions for getting rid of the orange scale. If a number of Pennsylvania farmers of the old German race were sent out to care for these trees, we fancy the trunks and branches would be all pretty well annually whitewashed with lime; and we judge, from the great success they have in keeping down all sorts of scale insects as well as fungus diseases, by the use of lime wash on their fruit orchards, little trouble would be found from the orange scale, or any other pest of that fruit tree. This paragraph is suggested by a discussion going on in a California paper in regard to what is called the phenomenal growth of orange trees near San Jose, which is attributed to whitewashed fences surrounding the trees. The trees of two years' growth were about 16 feet high.

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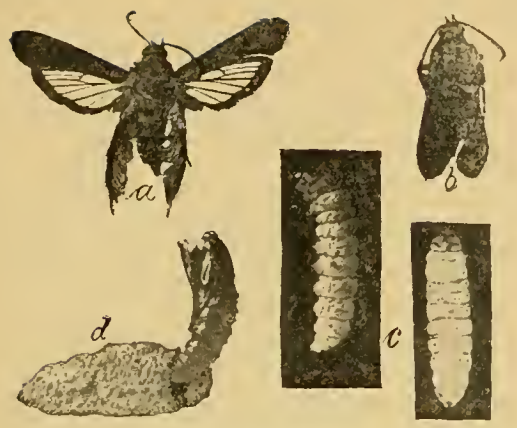
IMPROVED GRAPES.—A correspondent sagely remarks: "The first great advance in improving the native grape was made over a quarter of a century ago by a young lawyer of Boston, and not by one who knew the business. He was simply one of the much contemned amateur class. I am of opinion that it could clearly be shown that the intelligent amateur has done considerable more to advance American horticulture than the trade has done. You will perhaps say that each class has done its share in its own way. Perhaps so,—I will only ask whether any grapes are to-day any better than those which Rogers raised so many years ago?"




SQUASH BORERS.

THE SQUASH BORER.—It is one of the pleasures of rural life to watch the behavior of insects; and the pleasure can often be turned to great profit by the cultivator. Recently the writer of this paragraph saw an industrious farmer hard at work collecting and burning the stems of his potatoes. He explained that they had been destroyed before mature by stem borers, and that "his paper" had advised burning in order to destroy the whole brood. He had never looked for the beetle, nor had he ever cut open a stem to see the working of the "grub." He was amazed when he was shown that the "grub" had long ago left the stems for its winter quarters in the ground. If he had known this and pulled up the stems when they began to fade, he would not have had his labor for his pains.

A useful lesson to learn about predacious insects is that kind nature does not usually inflict them on the cultivator for long at a time. A species increases in proportion to the food at its command. Hence, when any vegetable feeder becomes numerous, some carniverous species usually follows to feed on them. Still man must do a little for his own protection, and the more he knows the more he can do. These creatures often emigrate to new fields where food is plenty. How they find the best pastures, no one knows. They are smarter than we take them for.

Just now the New Jersey and New York vegetable growers are bothered by the squash stem-borer, which by the courtesy of Prof. J. B. Smith, of the New Jersey experiment station, is here illustrated. The grub proceeds from the egg of a day-flying moth, *Melittia ceto* of entomology. The eggs are deposited in Northern New Jersey about the first week in July, so that if it is possible to get squashes from vines when planted so late as the middle of July, they probably would be exempt. The plan adopted with many plants that would suffer from stem borers is to lap pine tar paper round the stems, or paper smeared with wheel grease. The letters merely represent different stages of the insect's growth.

SQUASH BORERS.

KRIGIA DANDELION, NUTTALL.—Mr. Ernest Walker, New Albany, Ind., writes that *Krigia Dandelion* occurs in isolated thick patches in open woods around New Albany, Ind. It appears to love a rich, springy soil, and some of the nicest specimens were found growing on a southerly slope under oaks.

The herbage comes on a short stem from the summit of a smooth, small, tuber. The short stem above the tuber throws out numerous fibrous roots, and from the scale axils underground branches, which terminate in fleshy tubers exactly like those of the potato on a reduced scale. The tubers are slightly milky, and have the taste of a raw potato with a faint bitterish flavor. Southern Indiana is slightly north of the plants' recorded range."

A colored plate of this plant appears in the second series of "Flowers and Ferns of the United States" (Vol. I., plate 35), but no mention of this interesting fact appears in the chapter giving its history. It would be well worth while trying to improve it as a garden vegetable.

# BIOGRAPHY AND LITERATURE.

## FROST.

I TRACED her name upon the frost
That blurred my window pane;
At morn the sweet device was lost.
The glass was blurred again.

So fades the impress that we make
On those who love no more;
'Tis like the ripple on the lake,
Scarce seen till it is o'er.

—ST. GEORGE BEST, in June *Lippincott's*.

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GROUNDS OF WERNER BOECKLIN, ESQ., BURLINGTON, IOWA.—Once on a time a loving couple were going through the grounds of a nursery near Philadelphia with the salesman, when some remark was addressed to the husband, who was walking quietly behind. "Don't say anything to him," the lady remarked. "He doesn't care anything for flowers."

It happened that the salesman and the gentleman were alone for a few minutes when he whispered, "My wife thinks I don't care for flowers, but I do, only if she knew it the cost would ruin me."

All husbands are however not so timid, as the following from Mr. Boecklin abundantly testifies. We take the liberty of publishing it, in order to encourage many husbands already pretty good to their wives to still go on and do better.

"Many thanks for sending us a duplicate of the August number of your monthly, for those photos from our place were duly appreciated and admired. You will surely excuse my smiling, however, at the way 'history is written.' Even old Horace Greeley's history of our late rebellion tells many things that are not just so. And now, according to MEEHANS' MONTHLY, Werner Boecklin, Esq., is the grand old bashaw with three tails, while in reality our lovely garden is Cornelia B.'s product, the result of twenty years of her unremitting care and untiring labor. But like Chas. Dudley Warner, 'yours truly' occasionally sits on an inverted flower pot, bosses the job, pays the bills and takes the glory. It was ever thus."

THE SHRUBS OF NORTHEASTERN AMERICA, by Charles S. Newhall, New York,—G. P. Putnams' Sons.

Mr. Newhall is already known by a similar work on the trees, and the many who have profited by the easy way in which he has introduced them to a knowledge of the larger denizens of our forests, will be glad of this chance to make the acquaintance of the more humble ones. Though no botanist could object to anything, the popular keys remove the usual objection that "Botany is a hard study." For instance, shrubs are arranged by their fruit, and class I. includes those which have the seeds released by decay,—the second class, those which split their seed vessels to let the seeds escape. An apple would naturally be in the first section, while such things as *Althæa* and those with pea-shaped fruits would come under the second. It will not be difficult for anyone to find the name of any shrub, with a work like this,—and then learn, in a condensed form, all about it.

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BULBS AND TUBEROUS ROOTED PLANTS, THEIR HISTORY AND SUCCESSFUL CULTURE, by C. L. Allen,—published by Orange Judd Co. Amateur horticulturists particularly delight in bulbs. They do not require the continual attention other plants do,—for even the best loved tasks become monotonous. Their cultivation is comparatively simple, and yet there is much to learn. No better teacher could be found than Mr. C. L. Allen, and this beautifully illustrated work does him much credit.

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T. C. THURLOW.—Prophets—like some other men—are seldom without honor, except in their own country. When the "own country" comes into the arena with praise, it is doubly welcome. It is pleasant always to note the praise and double praise of good flower lovers. The *Boston Traveler* has this good word for Mr. T. C. Thurlow, whom readers of MEEHANS' MONTHLY already know. It classes him among the leading men of West Newbury.

SCOTCH THISTLE.—A correspondent sends an extract from a literary periodical of high character in which the Canada thistle is noted as the "famous Scotch thistle." He thinks the real thing is quite another species, and would like a "history of the whole affair." This is a heavy request for our limited space. Briefly:—There is a legend that in the early history of Scotland, the naked footed invader was arrested by the besieged strewing thistles round the fort. In our times besiegers would have burnt them, and then advanced,—story not likely. The motto of the order of the thistle, founded by James II. in 1687, with the motto, "No one treads on me with impunity," evidently has no reference to such a legend. The thistle does not appear to have been the Scotch national flower before this. On the standards of Scotland, up to this time, a fancy portrait of St. Giles was the leading feature. St. Giles was one of the earliest Benedictine abbots in Normandy. Lafranc, another Benedictine from France, was made archbishop of Canterbury by the influence of William the Conqueror, and Benedictine priests from the continent installed everywhere. Margaret, wife of the great Scotch leader, Malcolm Canmere, sent to Lafranc for Benedictine priests, and under their influence the famous Church of St. Giles in Edinburg was founded in 1110. The charter of the order of the Thistle was granted to a body that had St. Andrew for their patron. For some reason or other which the writer of this paragraph has not clearly gathered from history, about this time a crusade arose against the figure of St. Giles on the national standard, and by an order of the Council sitting in Edinburg, his figure was ordered to be supplanted by the thistle. The motto of the order appears to have been adopted in some spirit of retaliation, and there seems to be no question that a religious antipathy of some kind induced the change. St. Giles in no way whatever had relation to either the civil or religious history of Scotland. He died in his forest hermitage in Normandy about the end of the eighth century, and scarcely anything is known of him, not even the year of his death. It was but the tradition of the Norman monks of his order in charge of the churches of Scotland, some two or three hundred years after, that dedicated these great edifices in his honor. Whether or not any of these considerations had to do with the dethronement of St. Giles by the Scotch Thistle must be only a guess.

THE YORK AND LANCASTER ROSES.—Those familiar with Shakespeare remember that the two antagonistic houses of York and Lancaster had their followers distinguished by one side carrying white roses and the other red roses. There is in cultivation, a rose called the *York and Lancaster* on account of striped white and red lines pervading the petals,—these colors, of course, represent the two houses united. Just what particular species of roses were chosen has always had an interest for the critical student. A recent notice in the *Quarterly Review* decides that the white rose of York was the English wild rose,—*Rosa arvensis*, and warmly contends that it was a double variety of this species; but if that rose at all, it was most likely to be a pure wild form, for it would be almost impossible to get double flowers for the thousands of men who engaged in those broils.

TABERNÆMONTANA.—The origin of this name has recently been the subject of criticism in MEEHANS' MONTHLY. Dr. Bronson, of Eustis, Florida, objects to the meaning of *Taberna* being confined to tavern. Tabernacle has its origin in the same root, and he suggests that "Tabernacle of The Most High" could hardly be reduced to mean God's Tavern. He would rather restrict the word *Tabernæmontana* to mean a hospitable mountain home. *Tabernæ*, therefore, simply relates to the plant's home, and *Montana* the mountain, the high ground on which it grows.

ASA GRAY.—Mrs. Gray has done the world great service by publishing a selection of her late husband's letters. Lovable and beloved wherever he was known, this glimpse of his inner life lends an additional charm to his memory. The letters are in two volumes, published by Houghton, Mifflin & Co., Boston.

THE INSANE.—Not now as possessed by Satan, the insane are objects of our sympathy and love. Our best gardeners raise flowers for them. Some lovely seedlings come from Thos. McCarthy, gardener at the Danville (Penna.) Asylum.

# GENERAL NOTES.

DISCRIMINATIVE LOVE FOR FLOWERS.—Roses, carnations, and similar flowers, stock articles with the florists, have preserved to a great extent the love of flowers among our people, while they have been recovering from the great blow to that higher and intelligent love of horticulture which resulted from the great civil war. Since that time it has been rare to find a person, though with a reputation for culture, that knew one flower from another in any intelligent sense of the word. To find the rare and beautiful flowers which the last generation enjoyed, we have to search farm windows and old-fashioned suburban gardens, where many of them have been preserved. But times are changing, and herbaceous borders and houses for rarer plants are being built in numbers. Around Philadelphia this progress is apparent. Mr. John Wanamaker has erected an orchid house at an expense of over $10,000,—Mr. H. P. McKean is about to build extensive ranges,—and the City Councils, of Philadelphia, have appropriated $15,000 as a beginning for a house in Fairmount Park expressly for the winter blooming plants of Australia and similar things.

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CONDENSATION.—The index shows the strength of the point made regarding the effort at condensation made by MEEHANS' MONTHLY. There is scarcely a paragraph but furnishes matter valuable for reference for all time. MEEHANS' MONTHLY might justly be termed an encyclopædia of gardening and popular botany. Most of our subscribers are binding their numbers, making a beautiful library book for all time.

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THE HEAD-LINE POEMS.—Several correspondents have recently taken occasion to send compliments on the beauty and appropriateness of the poems which adorn the several chapter heads in the magazine. Referring to Mrs. Helen Hunt Jackson's poem in the November number, a New York friend remarks: "It is a beautiful poem. She was truly a botanist in her love of plants and her capacity to seek out and understand their many charming manners and customs."

It may here be remarked that in this sentence our correspondent has succinctly and yet beautifully expressed the mission of the true poet. Much that is called poetry in modern times is but a torturing of words, and a twisting of phrases into shapes unheard of until the greater the obscurity and the more difficult it may be to get at the meaning of the "poet" the more brilliant the genius is supposed to be.

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THE SMALL PARKS OF LONDON.—The city councils of London not only open small parks for the people as breathing places, but adorn them with flowers as far as consistent with a free use of the ground. A contract was recently made with a single firm for one thousand dollars' worth of Dutch bulbs for planting this autumn,—and two thousand five hundred dollars will buy a good many bulbs in the old world.

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FOREIGNERS.—The *Gardener's Chronicle* well remarks that Englishmen are startled when they hear such men as Asa Gray and Oliver Wendell Holmes, spoken of as "foreigners." In gardening affairs, especially, America and England are being drawn closer together from year to year. Possibly the time may come when their commercial interests may be as much alike as their science, their literature and their language.

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THE NEXT PLATE.—The curious order of *Trilliaceæ* contains only the American genera, *Trillium* and *Medeola*, both furnishing interesting wild flowers. *Trillium grandiflorum* will be the subject of the next plate.

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AMERICAN POMOLOGICAL SOCIETY.—The executive committee has decided to hold the next meeting of this useful society in San Francisco sometime during the winter of 1894-95. The exact date is not yet determined.

TRILLIUM GRANDIFLORUM

# TRILLIUM GRANDIFLORUM.

## GROUND LILY.

### NATURAL ORDER, TRILLIACEÆ.

TRILLIUM GRANDIFLORUM, Salisbury.—Stem eight to twelve inches high. Leaves three to five inches in diameter, broadly rhomboid-ovate, subsessile, abruptly acuminate; peduncle included. Flowers suberect; petals one and a half to two inches in length, much larger than the calyx, spatulate-obovate, connivent at the base, abruptly acumiuate at the apex. (Wood's *Class-Book of Botany*. See also Gray's *Manual of the Botany of the Northern United States*, and Chapman's *Flora of the Southern United States*.)

It will be noted that Professor Wood, whose description is adopted because it fits so accurately the specimen here illustrated, places the plants of this genus in a natural order for which they have also furnished the name—*Trilliaceæ*,—while Professor Gray, in his more modern works, refers them to *Liliaceæ*, though, in his earlier publications, Professor Gray classed them as *Trilliaceæ* also. This fact will teach the student how difficult it is to draw definite lines between various classes in nature, and that the distinctions depend more on the views of the importance or non-importance of divisional lines which botanists may hold. *Liliaceæ*, or the Lily family, belongs to the endogenous division of the vegetable kingdom, a striking peculiarity of which is that the leaves have not netted veins, nor have the stems regular annual concentric layers or rings of wood. In *Liliaceæ*, also, the parts are usually strictly in threes. Our plants differ from typical *Liliaceæ* in some of these respects, and the anomalies induced DeCandolle in 1816 to place them in a natural order separate, and under the name of *Trilliaceæ*. Though we have followed Professor Wood in the retention of the separate order, the experiences of modern morphology rather tend to confirm the view taken by Professor Gray, and probably all botanists will finally agree in uniting the order with *Liliaceæ*. The most striking difference in the order from the usual forms of the Lily family, as well as from endogens in general, is in the tendency to produce veins which cross each other, or, as is commonly said, produce netted-veined leaves. This tendency we see in the specimen here illustrated. Still, the slight tendency to the netted-veined character is accompanied, both in the leaves and in the petals, by the parallel main veins which are so characteristic of endogens. But in acknowledged endogens, as in *Amaryllis* or *Funkia*, for instance, it is not unusual to find netted veins in the petals, which, as the student knows, are but transformed leaves. In *Paris*, a European representative of the order, and with which *Trillium* was at first associated by Linnæus, the parts are in fours. There are four leaves, four sepals, four petals, eight stamens, and four stigmas. But in the common asparagus, a member of the order *Liliaceæ*, we find an occasional flower which has the peculiarity of having all the parts in fours, as in *Paris*. When, therefore, we find the peculiarities which are supposed to distinguish an order, existing in another, though, perhaps, to a less extent, it is an admonition that there is no natural dividing line, such as we look for in the idea of a distinct natural order.

The genus is one so remarkable for variation that it is difficult to define the species belonging to it. In Philip Miller's time there were but three recognized species,—and now only nine are recognized by Professor Wood in his class-book. But attempts to make more have been numerous. In Beck's time they had increased to fifteen, and Rafinesque in his "Medical Flora," published in 1830, named and described thirty-four species, besides giving Latin names to numerous varieties. In the one we now describe, *Trillium grandiflorum*,—which was so named by Dr. Salisbury, who had a famous botanic garden at Brompton, near London, in the early part of the present century, — Rafinesque, after giving the description according to Salisbury's name, makes the following varieties, *roseum*,

*elatior*, *rhomboideum*, *pumilum*, *parviflorum*, *macropium*, *obovatum*, *longifolium*. In these days, when it is well understood that there are individual variations in every species, the specific characters are drawn by the describer so as to cover all these variations as far as possible, rather than to burden classification by hosts of varietal names.

In connection with this subject of relationship and variation, it is interesting to note that the popular mind often traces family connections where the man of science would keep apart. Rafinesque tells us that the common people called this species "Ground lily," not perceiving any distinction between *Trilliaceæ* and the great Lily family. This common name we have placed at the head of our chapter in preference to "Large White Trillium, or Wake-Robin" given by Professor Gray in the "Manual," because even in the case of common as well as in botanical names the law of priority may be considered as of some weight, especially when it has the additional merit of some appropriateness. "Wake-Robin" is a common name for some species of English *Arum*, and it only serves to confuse when applied to a very different plant.

Writing of *Trillium grandiflorum*, Pursh says the whole genus possesses strong medical virtues—the reputation in his day having probably been received through the Indians. Rafinesque says that the berries are not poisonous, though most works, even at the present day, represent them as so. Sometimes the color varies from light to dark, and Rafinesque says the Indians entertained the curious belief that medicinally the dark flowered forms were best for males, and the light was for females. When chewed, he also says, the roots "produce salivation, and tears, with heat in the throat, and next a sensation of coldness over the whole system," and that "it is said that they obviate or prevent gangrene, and the need of cutting off mortified limbs," and further that "they say in Canada that the roots chewed will cure instantly the bite of rattlesnakes, both in men and cattle. Mr. Hawkins saw an Indian make the experiment for a gill of rum; but how it acted is not stated. The Indians of Missouri call them 'Mochar Newachar,' meaning heat and cold. It is their remedy for consumption." It appears, however, that the medical reputation depends chiefly on Indian practices. Dr. Griffith, as late as 1847, remarks, "these plants deserve the attention of the profession, for if they possess the virtues attributed to them, they are worthy of admission into the officinal lists of the Materia Medica."

*Trillium grandiflorum* is chiefly at home in the Northeast portion of the United States, extending from Vermont west to Wisconsin, and managing to get South as far as North Carolina, by means of the Allegheny mountains. It forms part of the undergrowth of rocky, shady woods. As already noted, in common with the whole genus it is often found with great variations; but in no place, perhaps, more so than in Michigan. In the volume of the "Botanical Gazette" for 1879, Mr. E. T. Smith, of Hubbardston, notes some very remarkable ones. He has seen them sometimes with no leaves; but in this case the sepals wonderfully enlarged, so as to be in fact leaves. Then there are some with petals green as if they were leaves. He has also seen the stamens, and even the styles turned into leaves, and, occasionally, double the usual number of stamens. He finds great numbers of these variable forms; and the plants showing any particular peculiarity, continue to reproduce it from year to year. Our specimen came from Michigan, sent by Mrs. Lucy A. Millington, and exhibits a true normal form. It is also precisely like specimens kindly furnished from the garden of Norton Johnson, Esq., of Germantown, where it has been growing for a great number of years. Works on gardening do not consider it beautiful; but it is certainly a useful plant for growing in shady places, and is always admired when in flower.

Tendencies to develop double flowers have been noticed, but no actual double flower recorded. At one time double flowers were passed over as mere monstrosities. Now botanists look for them, as they aid in explaining morphological problems. Formerly the florist had the credit of producing double flowers; but nearly all double garden flowers were first found in a wild state.

# WILD FLOWERS AND NATURE.

## THE TRAILING ARBUTUS.

"The mellow sunshine floweth softly down
Golden and wide over these billowy swells,
And on their bare and quiet woods of brown;
And over all, in the distant dells,
The blue haze broods in silence. Wandering here
In the sweet stillness of this April day,
Sweet flower, once more
I find thee trailing all thy rosy bells
Among the pale-brown leaves of last year."

—HOWARD WORCESTER GILBERT.

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PROPULSION OF SEEDS.—In regard to this interesting topic Mr. J. A. Graves, of Susquehanna, Pa., notes: "Your mention of the irritability of the *Oxalis stricta* and *violacea* in the December number reminds me of my experience with New Jersey Tea (*Ceanothus Americanus*). Last winter, while arranging the plants I had collected through the season and consigning them to their final resting place in the *Hortus siccus*, I wondered what could be the meaning of the continued crack—crack, I was hearing—a regular little fusillade seemingly going on in the pile of specimens before me. Perhaps it might be a *feu-de joie* in honor of the event. Presently I came to the sheet on which was the *Ceanothus*, and the mysterious cracking was a mystery no longer, for there lay the exploded shells thickly scattered about on the field of action before me. Just then my eye detected one of the fusileers in the very act of firing, and before I could wink had hit me square in the face with one of the little seed-shot, giving me to understand that he intended to do some kicking against being disposed of so summarily.

The twisted and otherwise contorted pod valves scattered about on the sheet was a full explanation of the fairy fusillade that I had heard. Spring guns are used in Flora's kingdom instead of Gatling's.

The *Euphorbia maculata* possesses the similar trait of ejecting its seed. I have not been so fortunate as to detect it throwing its seeds from the capsule, but the tiny brown seeds and the twisted pod valves lying scattered about on the herbarium sheet are evidences of the fact.

Several other plants are known to have these explosive features, of which the Witch Hazel is perhaps the most familiar instance."

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WILD FLOWERS OF MINNESOTA AND DAKOTA.—Mr. J. M. Dunlop, of Milwaukee, notes: "*Opuntia Rafinesquii* and *O. Missouriensis* were collected by me on a rocky bluff near Big Stone Lake, on the State line of Minnesota and Dakota, in latitude 45.30, 507 miles northwest of Milwaukee. *Mamillaria vivipara* is also abundant on the same bluffs. The thermometer falls every winter to from 30 to 40 below zero, and as there is little protection it may be judged how hardy they are. *Mamillaria vivipara* is one of the hardy cactuses that ought to be in every garden. Its flowers are of a beautiful purple, about two inches across, and the sepals are also colored and fringed. It is in bloom during the whole summer when the sun shines. The bluff, where these cactuses grow, is a very singular one. There may be 40 acres of it. I clambered up in expectation of finding many rock ferns. The only ones I found were at its base—*Cistopteris fragilis* and *C. bulbifera*. High on the top I found *Campanula rotundifolia* in a large bed in fine bloom, with a few plants of *Oxalis violacea*. Had there been a few plants of *Lotus corniculatus* in place of the *Oxalis*, I would have felt like the Jews by Babylonian streams, as it brought to my mind my boyhood days in Scotland, when I knew neither care nor trouble."

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COMMON NAMES OF WILD FLOWERS.—It is always desirable to have a common name for popular use, and when English names become common, even botanists like to use them. Looking over *Pursh's Journal* he notes that in the northern part of Pennsylvania *Tiarella cordifolia* is universally known by the name of Rough-Leaf, and that *Trillium erythrocarpum* is known as the Bath-Nut. What connection the last name has with the plant is not evident; perhaps some of our readers in northern Pennsylvania can explain.

THE BARK OF TREES.—Few things interested our European visitors among phytologists, especially our German friends, among whom we may class the accomplished editor of "*Gartenflora*," than the practical lessons afforded them by the Senior Conductor of MEEHANS' MONTHLY, regarding the manner in which nature forms the rough bark of trees, and many wishes were expressed that he would prepare a fully illustrated paper for some scientific magazine or society. The old idea that the bark of trees cracks mechanically, through expansion by growth, has long since been abandoned; but nothing has taken its place in the text books, though the Senior Conductor of MEEHANS' MONTHLY has often shown in popular lectures, that the rifts follow from the growth of cork-cells, and that the manner of growth of these cork, or suber-cells, is peculiar to each species of tree. The time and manner of the occurrence of rough bark is so specifically distinct that a blind man may distinguish species by the touch. Many years ago the writer of this in conversation with the late Professor Gray, and Doctor Russell, of Hartford, offered to put this to the test, and together the three took a night walk around the grounds of the hospital for the insane. Doctor Russell confirmed the name of the tree given in each case. The intention of the present paragraph is simply to call general attention to this hitherto obscure subject. The illustration on opposite page is given through the courtesy of Professor Rothrock, State Forester of Pennsylvania, of the trunk of a persimmon tree; any one could surely learn to distinguish it by its bark.

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DOUBLE TRUNKS IN TREES.—A correspondent at Chestnut Hill, Philadelphia, notes that along the Wissahickon Drive, just above the Reading railroad bridge, near the Park restaurant known as "Maple Spring," there is a Buttonwood tree, which has a loop in the trunk, that is to say, there is an opening probably two feet long, and nearly as wide—really being two trunks at that point—as if the tree bole had forked just above the ground and then again united. This is quite likely to have been the case. Instances of this character are occasionally seen in this and other trees. Preserved in the Museum of the Academy of Natural Sciences is a portion of the trunk of a Silver Birch of the same character. It is simply brought about by the uniting, or inarching of two branches in youth. One of the trunks subsequently rotting away or dying, at the top beyond the union, the growth afterwards continues and gives the appearance noted. On the grounds of the late James Gowen, of Mt. Airy, there is, or was some years ago, a Magnolia tree. Some half a dozen young trees had been planted around a circle of probably 6 or 8 feet in diameter. At the height of about 5 or 6 feet from the ground, these had all been drawn together where they united at the point, and eventually formed one single trunk, and the tree has the appearance of standing on six legs. Experiments of this kind may be made in any garden, and are not only of much interest for lessons in regard to the manner of tree growth, but always afford objects of interest to those who simply love to see the curious in vegetation.

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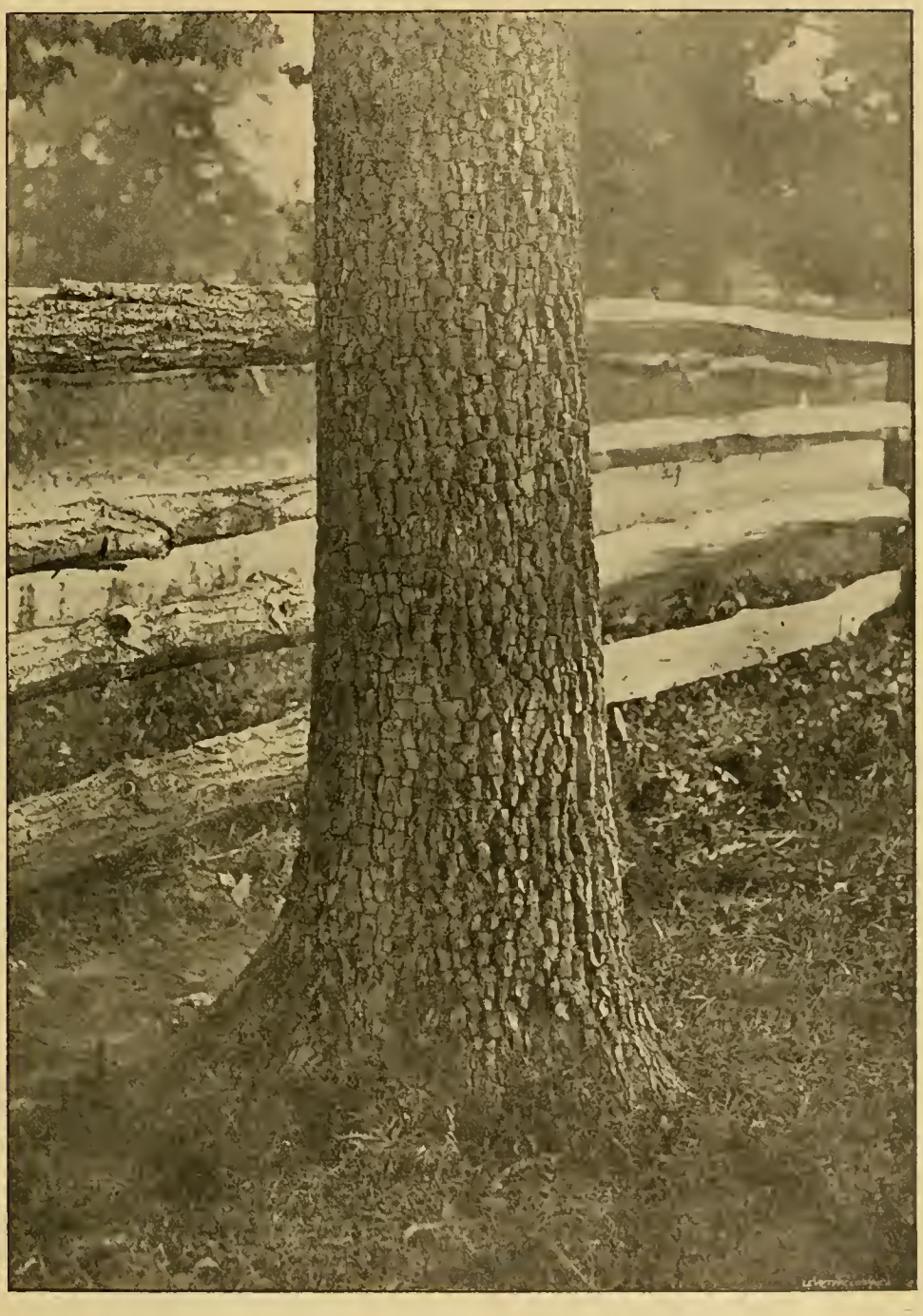
THE RESISTANCE OF TREE-TRUNKS TO THE WIND.—Fewer thoughts would be suspected of error than that a tree trunk of immense size, stood against storms as solidly as a rock. Poets have been fond of using this fact in illustration of various story points. Algernon Swinburne used it as an illustration of "Faith."

Faith fades and shines and ebbs away,
Faint as the moon if the sundawn gleam.

Faith, whose eyes in the low, last ray
Watch the fire that renews the day—
Faith, which lives in the living past,
Rock-rooted, swerves not as weeds that sway.

As trees that stand in the storm-wind fast
She stands, unsmitten of Death's keen blast;
With strong remembrance of sunbright spring,
Alive at heart to the lifeless last.

Yet few things are more interesting than to watch from the inside of a room, the behaviour of the tree trunk under a gale. Measured by the window panes, the largest trunk may be distinctly noted swaying back and forth. It is, of course, but very slight in an old tree, but still sufficiently distinct to be noted. People usually love to stand by the sea-side, and note some immense vessel battling with the waves in a terrible storm, and learning a lesson as to the immense power of natural forces. But just the same good lesson can be had from a tree trunk battling with the wind in the same way. For all that the poet says, it will be found that they do "swerve" "as weeds that sway."



TRUNK OF PERSIMMON, DIOSPYROS VIRGINIANA, L.—SEE PAGE 20

THE BEAUTY OF THE OAK.—In the examination of the scenery collection of paintings, exhibited in New York last spring, Corot's "Oak Charlemagne" was the occasion of an inquiry why the English Oak was always represented with an element of strength which American oaks do not exhibit. But this cannot be said of the American white oak, *Quercus alba*, which will often bear fair comparison with its English relative. If we critically examine as to what gives this peculiar character to the English oak, it may be seen to consist in the tendency of the side branches to rival the central trunk in size. In most American oaks, these side branches are always much inferior to the main trunk. But in the English oak, the laterals are often almost as heavy as the trunk ; and when they spread, as they often do, to a long distance, and yet seem almost self-sustaining in spite of the efforts of gravitation to pull them down, the impression of immense strength is irresistible. In this respect the American white oak is a good match for the other. The side branches are of immense strength, and no one can ever behold a well grown specimen of any considerable age without bowing in respect to so much arboreal majesty.

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BORING OF FLOWERS BY HUMBLE BEES.—A large number of flowers are bored, as it is believed by humble bees. They collect the nectar in this way, instead of entering by the mouth of the flower. Dr. J. Schneck, of Mt. Carmel, Ills., one of our most observing botanists, believes these are not humble bees—members of the genus *Bombus*,—but belong to the genus *Xylocopa*, popularly known as Borers, or Carpenter Bees. He has certainly seen these creatures slitting the tubes of clover, and humble bees entering the mouth in the legitimate way.

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ABRAHAM'S OAK.—In the old world, where the climate is not so severe on vegetation, trees are sometimes known to have existed for many, many centuries. On the Plains of Mamre there is an oak so old that no one knows its history. A popular legend claims that it was there in Abraham's time, and that under its boughs the patriarch rested. The *Gardener's Chronicle* says that it is *Quercus pseudo-coccifera*, a species of oak still common in Syria.

MAPLE SUGAR.—It seems almost incredible that during a single year no less than 36,000,000 pounds of sugar should be taken from the Maple trees of the northeastern portion of the United States—Vermont being one of the leading States for this sugar product. March is the month in which the sap is chiefly collected for sugar in that State. It has been stated that no sugar can be made from Maples in any climate where there is not a severe frost. How this is, however, we cannot trace to any faithful record. The original Sugar Maple woods are getting scarce, but young trees are being set out in immense quantities in Vermont, just as apple trees are for orchards in other places. A correspondent of the New York "*Independent*" states that orchards of five and eight acres are not uncommon. They are usually planted on elevations, so that as the sap flows it can be conducted at once down hill into troughs to the boiling places. A 15 year old tree is large enough to profitably tap. In the old way a hole was made in the tree by an augur and a wooden spout driven in ; but in modern times galvanized iron spouts are used. The sweetest sap is said to be in the wood of the previous year—that which is obtained from older wood being comparatively thin. When the sap is received in the vats, the liquid portion is evaporated by heat and the sugar remains. Several successive boilings, however, are required to get the best article. The profits of maple sugar are not large, but are said to be comparatively fair, and that $40 per acre can often be made. This, at certain seasons of the year, would be a meagre return for the time, trouble and expense ; but happening when other work is scarce, it fills in the time fairly well.

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THE TREES OF ARKANSAS.—Mrs. Johnstone, of Hastings, Nebraska, sends a note in regard to the unusual character of the forest scenery of Arkansas. Trees are, as a rule, straight, and not growing close together. They are carpeted by grass without underbrush. These points struck also the writer of this paragraph in his first journey through Arkansas. The whole country seems like one vast park belonging to some powerful baron of the Old World. As the writer of this remembers the trees were chiefly of Post Oak, Pecan, and Nettle trees, although there are species of trees that are more or less frequent.

# GENERAL GARDENING.

## ART IN NATURE.

There is a fresh and lovely sight;
A beauteous heap and hill of moss.
All lovely colors there you see,
And mossy net-work, too, is there,
As if by hand of lady fair
The work had woven been.

—WORDSWORTH.

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THE GARDENS OF THE GREEKS.—*The Gardening World* observes that the garden of Alcinous, in the Odyssey, is the most celebrated in the heroic times. Is there an admirer of Homer who can read his description without rapture, or who does not form to his imagination a scene of delight more picturesque than the landscapes of Titian? Yet what was that boasted paradise which—

. . . . the gods ordain'd
To grace Alcinous and his happy land.

Why, divested of harmonious Greek and bewitching poetry, it was a small orchard and vineyard, with some beds of herbs and two springs that watered them, enclosed with a quickset hedge. The whole compass of this much-vaunted garden comprised just four acres:—

Four acres was th' allotted space of ground,
Fenc'd with a green enclosure all around.

Its trees were Apples, Figs, Pomegranates, Pears, Olives, and Vines. And

Beds of all various herbs for ever green,
In beauteous order terminate the scene.

This garden of Alcinous planted by the poet, was enriched by him with the fairy gift of eternal summer, and no doubt was an effort of imagination surpassing anything Homer had ever seen. As he has bestowed on the same happy prince a palace with brazen walls and columns of silver, he certainly intended that the garden should be proportionately magnificent. We are sure, therefore, that as late as Homer's time, an enclosure of four acres, comprehending orchard, vineyard, and kitchen garden, was a stretch of luxury the eye of the poet had never beheld.

THE HARDY JASMINE. — A few years ago there was but one species which would stand the winters in the northeastern states, and this was *Jasminum officinale* — the oldest known, probably, of all the Jasmines. It still goes by the name of the Hardy Jasmine, although a yellow flowered one, much more hardy than this, has been in cultivation from Japan during recent years. This Japan species is known as *Jasminum nudicaule*, or sometimes *nudiflora*. It has yellow blossoms, very early, even before the leaves have appeared, but it has no fragrance. The old-fashioned Hardy Jasmine sometimes gets injured in severe winters in the north, but as a general rule manages to live pretty well. A correspondent tells us that at Trenton, N. J., some may be seen along the sides of houses, where they have been trained to trellises many feet in height, and apparently as hardy as any climbing vine. It certainly deserves to be much more cultivated than we usually find it.

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CULTIVATING WILD FLOWERS.—Dr. D. W. Beadle in the "Transactions of the Canadian Institute" regrets that there is no botanical garden in Canada, He points out how easy of cultivation most wildlings are, and instances a collection by Mr. Jas. L. Hughes, of 328 native species, mostly of great beauty, growing in his garden. Most people who fail in cultivating our beautiful wild flowers, neglect to give them food. In the woods and fields they get rich fertilizing from the hand of nature. A flower border requires an annual manuring as well as a vegetable garden.

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GRAFTING GERANIUMS ON TOMATOES.—Mr. John T. Wright, has been experimenting on herbaceous grafting, and has had the surprising result of success with a Geranium on a Tomato stock, and still more surprising a monocotyledon in the *Tradescantia zebrina*, also on the Tomato a dicotyledon. The experiments are described and illustrated in detail in the August issue of the *Botanical Gazette*.

EARLY CARE OF FRUIT TREES.—One of the problems of fruit culture is how to care for an orchard in its earlier years. Trees have to be planted at the distance from each other desirable when mature, but this implies a great waste of ground for many years. Sometimes short lived trees, such as peaches or dwarf pears are set between longer lived pears or apples, but in some parts of our country peaches or dwarf pears will live as long as other kinds. Rather than do this some cultivators set only those to be permanent, and either put some garden or farm crops between, or set the whole in grass. But when this is done the orchard whether in grass or garden crops, must have fertilizers of some kind, or the trees will starve. There is no objection to this double cropping when the ground is thus kept rich, unless crops are employed that make the earth very dry. Grain crops are of this character. The class of garden vegetables are not generally of such a thirsty character, and, where these can be made profitable use of, give the best selection. In many parts of our country it is indeed better to have the orchard ground cropped in this way, than to have a bare surface. The small fibres, properly so-called, the feeding roots which die annually, like to be near a shady surface. The vegetable crops give this grateful shade. In California they have found the sugar beet and fruit culture go well together. The cut on page 25 for which we are indebted to the courtesy of the *Rural Californian* shows an orchard so cropped.

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ROOT FUNGUS. — We have already stated that, as a result of our actual experiments, made many years ago, and recorded at the time in horticultural journals, the writer ascertained positively that the disease called the yellows in the peach, was caused by the work of a fine cobwebby spawn of a mushroom, which proved to be *Agaricus melleus*, which attacks the roots of the peach tree. It not only attacks the peach particularly, but has almost an equal fondness for other plants, among which the Norway spruce and the white pine may be especially named. The same, or similar disastrous results on the foliage, can be obtained by planting the spawn of this fungus around white pine and Norway spruce as around the peach. Its disastrous effect on the growth and leaves of plants are pretty nearly as well known now in the old world as it ought to be in America. Dr. Dyer has now discovered that another species of mushroom or toad-stool, called *Agaricus squarrosus*, has the same disastrous effect on trees as *Agaricus melleus*. Its pernicious influence, however, he says, is not generally so rapid as the other, as the mycelium is not nearly so well developed a structure. It, however, appears to work on the apple rather than the peach, so far as has been observed in the old world.

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THE GRAPEVINE DISEASE IN FRANCE. —No greater evidence of the immense value of scientific knowledge to the practical man has ever been adduced which is so conclusive as that in relation to grape culture in France, where thousands of acres of grapevines became absolute useless. Mainly through the scientific labors of our own Professor Riley, the existence of a root insect, the phylloxera, was discovered and its whole history decided. It was found to be an American insect, which had perhaps from the creation been in connection with American vines without any serious injury to them. The phylloxera transferred itself to the European vine, which was unable to resist as the American vines had done. It was only necessary, therefore, to introduce the American vine as well as the American insect, and graft the European forms on the American roots. The Inspector General, Georges Conanon, of the French Department of Agriculture, now states that in consequence of these practical deductions from scientific truths, France will soon regain her old position as a great wine growing country. The French wine grower no longer fears the insect. Plantations are now being made with as much confidence as they were before the existence of the insect was known.

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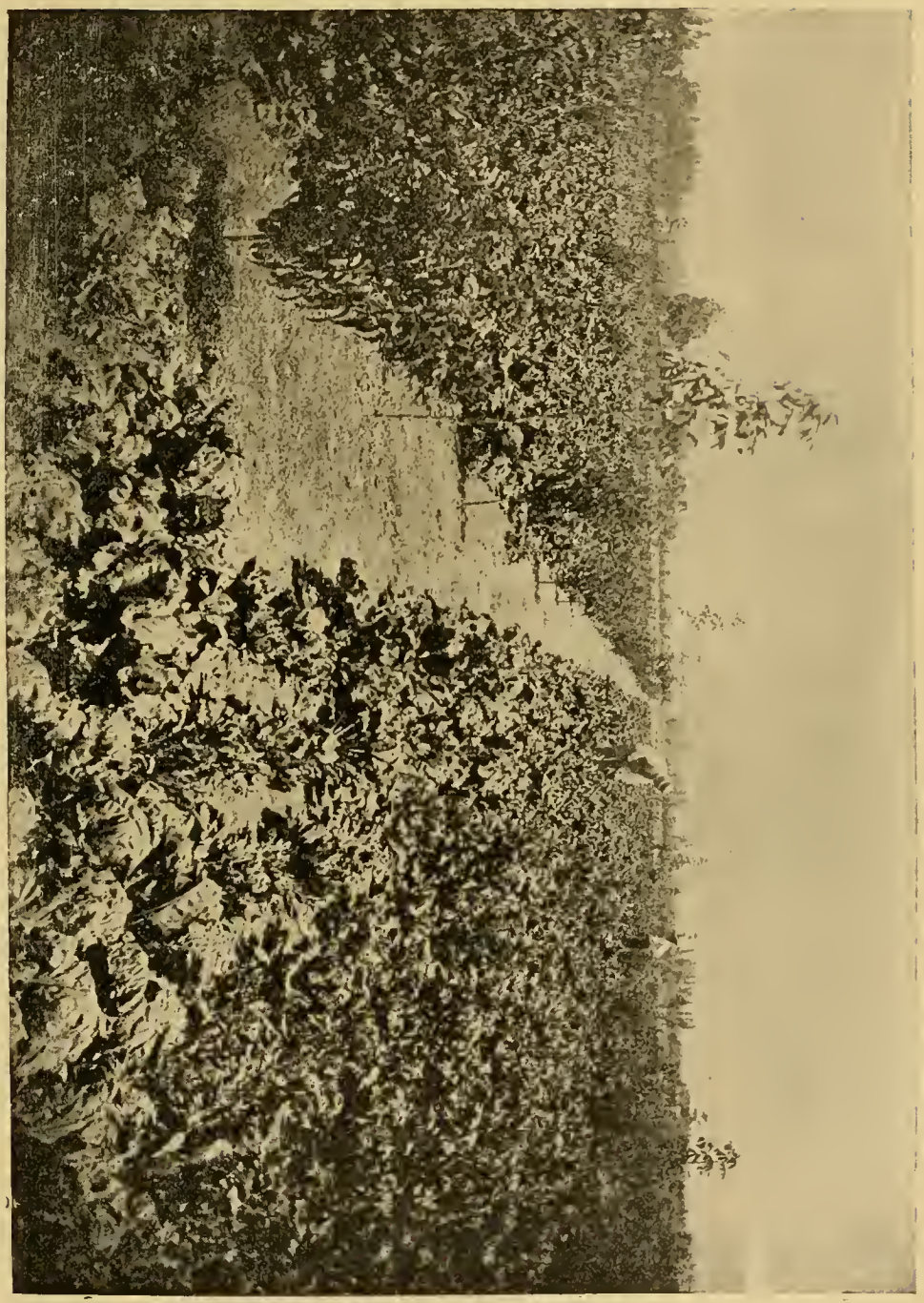
CLIMBING ROSES.—*Lyon Horticole*, an excellent French horticultural magazine, objects to the term of climbing, as applied to long slender-stem roses. It urges that no roses climb in the usual sense of the term. They should be called sarmentose. Perhaps the term was badly chosen in the first instance, but no one is now misled. Language is simply to express our thoughts, and we all understand the thought correctly when we speak of climbing roses.



AN ORCHARD OF FRUIT TREES.—SEE PAGE 24.

POPULAR NAMES OF PLANTS.—No one but the editor of a magazine knows so well what a great nuisance it is to be endeavoring to ascertain what is meant by this or that plant under some common name. Any one and every one seems to have a right to call a plant what name he pleases, and thus in every section of the world, plants have local names which those who use them cannot understand why it is that the editor should not know what is being referred to. The following extract from the London *Gardeners' Chronicle* shows that the same difference occurs in the old world as with us. The talk about botanical names being hard is evidently nonsense, as a large number of them are much easier than the common names which were introduced to displace them.

"With reference to Trillium erectum, Mr. MEEHAN, in his excellent *Monthly*, alludes to the circumstance that this American plant goes by the name of Three-leaved Nightshade, Wake Robin, Bath Flower, and Birthwort. This furnishes a good illustration of the inconvenience of popular names. In this country the Nightshade is Atropa belladonna, a widely different plant; Wake Robin is Arum maculatum, a plant almost equal remote; and Birthwort applies to Aristolochia clematitis, which has nothing to do with the plant under notice. Surely Trillium erectum is not more difficult to remember or pronounce than any of the others, while it has the great advantage that the name applies to the plant in every country in the world. There are cases where popular names are desirable, but this is not one of them."

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ABSORBTION OF WATER BY TREES.—It has been noted that in swamps, where there are small hillocks so that trees may grow on them, the ground is not as wet as in places where trees cannot grow. This comes from the absorbtion of moisture by the roots of trees. Every one knows how a large thrifty growing tree will dry the earth underneath it. It is this drying power of the roots which tends to make swamps dry. The more rapid grower a tree is, the more leaves, — in other words, the more leaves to pump moisture, the more they will dry the ground. Practical use of this fact in drying swamps has not, however, been made to any great extent. The only effort, on any great scale, to make use of this principle is on the marshes near Rome, where the Blue Gum tree of Australia has been planted. This is an enormously rapid growing tree, and the drying of the swamps is of course proportional.

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DISEASE OF ROOT FIBRES. — So many of these diseases are now traced to the parasitic fungi that the solutions of copper sulphate are being universally employed in their destruction. It must not, however, be forgotten that these solutions are poisonous to some extent, and care should be employed in their use. Some question has been raised as to the value of lime, which the French mix with their copper solutions. It is contended by one of the leading vegetable chemists of France that the copper solution cannot reach the inner parts of plants unless it is mixed with lime. This seems to be one of the cases where the facts are against the theory, for certainly the simple solution of copper has been abundantly effective in destroying these little pests in American gardens.

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PRUNING TREES.—It is customary in some quarters to decry science. Of what use, it is asked. is science to the practical man? The best answer is to point to tree pruning. The vast majority of trees are ruined by ignorant pruning. It is impossible to prune a tree properly without a knowledge of the scientific principles on which sound pruning depends. One may find out by a long and costly experience that by checking a growing shoot, by pinching or cutting back while growing, we weaken that shoot, and strengthen those not pinched or cut back,—but when we look around us, we see that people do not learn it by experience. But the lesson can be learned from scientific teaching,—even from a paragraph as brief as the reader is now perusing.

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TACSONIA.—Tacsonia is much like the passion flower, but among other differences, has a long tube to it. Interesting, as the passion flower always is, the Tacsonia usually surpasses it in beauty. They do not endure frost, but flower profusely in the open air during summer and fall. Mrs. Theodosia B. Shepherd, of Ventura, Cal., notes that *T. Sutherlandii* is "the most beautiful of the known family."

PACKING TREES.—It is not generally known that in sending trees to a distance, the tighter they can be packed, provided they are not very wet, the better they will travel. In old times, before the days of steamboats, it was not uncommon to send such plants as Camellias, Azaleas, Heaths, and other plants on a six months' voyage to Australia with perfect success. The plants were packed in perfectly dry moss, and pressed into the cases as tight as it was possible for them to be pressed. They usually reached Australia in perfect condition. In packing trees in America, tight pressure is also found to be a great benefit. This is especially the case where evergreen trees are to be packed, provided the moss, or material surrounding the branches is perfectly dry. Of course, in the vicinity of roots considerable moisture has to be provided for.

EVERGREENS AT THE WORLD'S FAIR.—Though our large firms found it impossible under the rules to make any great exhibit of a general character, such as appeared at the United States Centennial Exhibition, there were many special collections of great merit. Of these one notable one was by Mr. D. Hill, of Dundee, Ills., who makes a specialty of evergreens. There were six thousand plants in forty varieties, artistically arranged with great taste. The highest honors were deservedly awarded to them by the judges.

RAPID GROWTH OF THE CALIFORNIA REDWOOD TREES.—We have evidence in California that Redwood trees cut down sixty years ago have made sprouts which are new trees from three to five feet in diameter, and from one hundred to one hundred and fifty feet high. It is the rapid growth of some of these trees which leads people to doubt their great age,—but there seems to be no reason for doubting that the method of calculating by annual rings of wood is sound, and that the great age imputed to some of these trees has solid ground work to build on.

ABELIA RUPESTRIS.—This is a delightful small shrub from the Himalayas and China, often seen in greenhouses, and no doubt perfectly hardy. It is the subject of a colored plate in *Gartenflora* of March 1. It belongs to the honeysuckle family, or *Caprifoliaceæ*.

## FRUITS AND VEGETABLES.

THE PEACH YELLOWS.—*The Troy Daily Times* has an unusually wide-awake editress in Mrs William Seliger, who seems quite alive in gathering information from rich store-houses of learning that have long been closed to the general public. In a recent article on the "peach" she notices that the disease known as the "Yellows" is not a modern one, but was well known in the time of Thomas Say, the well known scientist of Philadelphia, who in 1825 referred to it as a terrible foe to the peach grower. We have learned much about these matters since. At that time there was an inclination to believe that the disease was simply a form of starvation. With the progress of our knowledge in the line of minute fungus matters, an intelligent fruit grower has no difficulty in deciding that fungus germs are at the bottom of the whole trouble. A peach tree comparatively starved may have yellow leaves,—the disease known as "Yellows" not only has yellow leaves but small sprouts growing out of the line of the main branches. A large number of the weaker twigs, by reason of their loss of vital power, die during the winter season. Such effects do not follow starvation.

THE BISMARK APPLE.—New varieties of apples are being raised in Australia as well as in the rest of the world, and one named the Bismark, is described as a very beautiful one and destined to great popularity in that part of the world. It was raised from seed sixteen years ago, by Mr. Clarkson, of Carisbrook a small town in the colony of Victoria, and not in New Zealand as was supposed. The apple was exhibited at one of the exhibitions, and named by three eminent British pomologists, Bismark. The German pomologists of Victoria are very proud, that, what they believe to be the best representative of the apple family in that part of the world, should have been named in honor of their distinguished fellow countryman.

CUCUMBER AS A HONEY PLANT.—In Florida the cucumber is regarded as an excellent bee-plant. It is said bees favor it; and that the honey prepared from cucumber flowers is of first class quality. Cucumber pollen is also said to be a favorite with the honey bee.

PRUNING CHERRY TREES.—Those who have made a special study of cherry culture, contend that the Morella or pie cherry class should have an entirely different system of pruning from those of the sweet or Biggareau class. The growing wood of the Morella should be thinned out in the young season so as to leave a fair proportion, a foot or so apart, all over the tree. This is on account of the great number of twigs which this class of cherry produces in comparison with the other class. The great object of pruning in fruit trees is to keep one branch from interfering with another,—all should be allowed to have a due proportion of light and air, which is necessary to have perfectly healthy leaves. If trees have been neglected and not pruned for a number of years, it is not well to do too much in one season. Although pruning is essential to good orchard culture, the vital principle of a tree is checked if a large number of branches are taken off at once. In pruning the class of sweet cherries, shortening of some of the shoots is employed, that is to say, they are cut down to short stumps, the result of which is the production of a large number of spurs, and it is from these spurs that the best fruit is produced.

THE CATAWISSA RASPBERRY.—When gardening becomes a skillful art, and pursued with that intelligence that it deserves, the Catawissa raspberry will be more highly appreciated than it is to-day. It was introduced over 30 years ago by Joshua Peirce, of Washington, especially for its Fall bearing properties. Those who plant it, and treat it as they do other raspberries, properly style it as "no good." Those who cut it down to the ground, and put an abundance of good food around it, as the famous editor of the *Germantown Telegraph*, Philip R. Freas, used to do, have something in September to surprise their friends who may be called in to "examine tea spoons" together.

POTATO CULTURE.—Some few practical farmers well understand that a much larger crop of potatoes can be obtained when the manure is of a long, stringy character than when well rotted manure, or special fertilizers are introduced; but this knowledge has not yet spread to the vegetable grower, critically so called. Yet it is amazing what an enormous crop of potatoes may be produced by the use of such material. If any of our amateur readers, who want to excite the envy of their neighbors by growing superior crops, will cover the potato sets with mere straw, or some other kind of litter, several inches in depth, before the earth is drawn over them they will certainly have this personal satisfaction. Draw out a trench, say 4 inches in depth, put the potato sets about a foot apart, cover the whole of this trench in 4 inches deep with straw or litter, and then draw 3 or 4 inches of earth over it, and the product will be a surprise. Not only are the potatoes large and produced in enormous quantities under this treatment, but the skins of the potato themselves have a bright and clear look, which makes them an object of beauty as well as a desirable crop from the purely vegetable point of view.

STEM-BORING INSECTS.—A number of insects carry on their destructive operations by boring into the trunks of the trees near the ground. The apple, quince and peach borers are of this class. Wagon grease, or any mixture containing pine tar—not coal tar—applied as a paint to the collar of the tree, has been found effective. The egg laying beetles do not like this sort of a nest, into which to deposit their eggs, but go elsewhere. It is better, perhaps, to destroy its brood than to banish them. For this the United States Department of Agriculture gives a good hint. The entomologist says:

"A very effective remedy, and one easy of application, consists in removing the soil for a few inches from the base of the tree, and painting the exposed trunk for a foot or so above the soil with a thick mixture of London purple and water. This should be applied about the first of June, and the young larvæ hatching from the eggs deposited by the parent moths will be poisoned in eating their first meal while penetrating the bark."

RHUBARB FROM ENGLAND.—A remarkable feature in the vegetable market of New York, for a week or two preceding Christmas, was in the shape of several tons of forced Rhubarb, of which it is said that over ten tons were received from Liverpool. It is something rare to have vegetables exported from the Old World to the New.

HORSE-RADISH LEAVES.—The paper by Mrs. Kellerman on the divided leaves of the Horse-radish, which appeared in MEEHANS' MONTHLY some time ago, is exciting very wide attention. A correspondent of the "Bulletin of the Torrey Botanical Club," imagines that plants which originally grew on the banks of streams and ponds likely to be covered by water in spring and fall, would most likely carry the pinnatifid habit with them. Plants growing under water usually have this class of foliage. These speculations are very interesting, because they lead to thought; but there are a number of plants which have divided leaves in infancy, especially among *Cruciferæ*, or have the leaves entire as they approach maturity; indeed, all plants have a tendency to entire leaves as the plant matures. The holly, ivy, paper mulberry, and ordinary white mulberry, honeysuckle, and various other similar illustrations will occur to most readers and need not be cited here.

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IMPORTATION OF FRUITS FROM AMERICA TO GREAT BRITAIN.—California has been able to throw her fresh fruits and vegetables on the eastern market with the greatest ease through the California Fruit Refrigerating Co., of which Mr. E. R. Hutchins is the vice-president. They are delivered as fresh and good in the eastern markets as if gathered only the day before. So successful has this company been that they are now making arrangements to carry them across the Atlantic. The New York steamers have had the Hutchins' refrigerators arranged so as to carry the fruit across the water in the same manner as it is brought across the continent. The fruit will be delivered in Liverpool and London and sold by auction in the same manner as it is now being done in New York and Philadelphia. California owes quite as much to the vigorous enterprise of its citizens for its wonderful prosperity as to its climatic advantages.

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THE ELBERTA PEACH.—This is becoming as famous in the south for market purposes as the Smock is in northern markets. The Smock is by no means of very high quality; but as it is what is known as a good carrier, that is, not inclined to rot under slight provocation, it has a market value which few others more sensitive, though of better quality, possess. The Elberta, in the same way, is characterized as enduring shipment remarkably well; while it not only defies bad treatment in carrying, but also bad treatment in nature, as it frequently bears when most others fail. It was raised 20 years ago by Mr. Rumph, of Georgia. As an illustration of how comparatively rare it is to get an improved variety, it may be stated that he set out an orchard of 12,000 seedlings for the sake of the natural fruit which they produced; and this one, the Elberta, was the only one that he considered to be of sufficient value to preserve under a distinctive name.

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GRAPES UNDER GLASS.—Apropos of the illustration in the December number of grape growing under glass, it may be noted that the extensive graperies erected by Mrs. Hettie Trimble at West Chester thirty years ago, and now owned by Mr. D. M. McFarland, are still in perfect health, notwithstanding a single vine—Muscat Hamburg—produces about 5,000 pounds of fruit a year. There are two lean-to houses 180 ft. by 20 each, and two span-roof of 50 ft. Thousands of bunches of Gros Colman were hanging on the vines early in December. They are not forced, but simply protected by glass. It is a cool grapery.

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CULTURE OF RASPBERRIES.—It is a common thing to see raspberry canes after the fruit is gathered, left standing until winter, and then cut away. The best amateur gardeners cut out the canes of last year as soon as possible after the fruit is gathered. This gives an opportunity for the canes for next year to grow more vigorously and to better advantage. In addition to this a number of the canes should be cut away, so as to leave for fruiting next year only those that we wish to carry the crop for the coming season.

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THREE GOOD PEACHES.—Mr. J. H. Hale, of Glastonbury, Conn., is one of the most successful of American Peach growers. He obtained the premium for the best ten at the Hartford County Horticultural Annual Exhibition, and it was a matter for special notice that the best among these ten were two very old kinds—Crawford's Late and Oldmixon. A newer local one called Crosby, was promising.

# BIOGRAPHY AND LITERATURE.

## THE GARDEN OF THE SOUL.

A SONNET.

I gaze into my heart, a sheltered spring,
From eye of the profaner hidden well,
Sending a streamlet forth, its love to sing
In dreamy murmurs down a narrow dell,
Screened from the breeze and sunset's fading glow
By crags bedecked with tressed grass and flowers
That drink their beauty from the vernal showers.
The heaven above in the clear depth below
Lies mirrored, and a solitary star.
But now steals in a sweet angelic face,
Which beaming not in coldness from afar,
Sheds a warm glory round the shaded place.
I know the radiant features; they are thine,
My gentle, fair, and peerless Rosaline.

THOMAS CONRAD PORTER.

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PROFESSOR ASA GRAY.—A beautiful feature in the character of the late Prof. Asa Gray, was the cordialty with which he welcomed light from every quarter. A note from him on any subject was always an incentive to harder work. The following to Miss Kurtz, of York, Pa., is so characteristic of this great man, that she will surely pardon the liberty taken to use it as an illustration of this happy characteristic.

"BOTANIC GARDEN,
"CAMBRIDGE, MASS., July, 1879.

"*Bravo!* Many thanks for the specimens. "There is a white form of almost every-"thing; but I never thought to see white "Partridge-berries. Hoping for plants in the "fall, I remain, sincerely yours,

"A. GRAY.

"Miss Kurtz."

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HELEN HUNT JACKSON.—In the early days of Colorado, it was the writer's good fortune to meet Mrs. Hunt, at the recently founded settlement of Denver. All of the party with the writer were charmed with the quiet, unobtrusive demeanour of Mrs. Hunt, beneath which we discovered a mine of wealth, which even the owner of a rich silver lode might envy. Like most mining settlements Denver had a large share of the rougher element, but the gentle lady, but recently a widow, seemed to have the esteem and love of all. She was born in Amherst, Mass., in 1831, and previous to her marriage with Mr. Hunt, who was an engineer in the United States service, was a Miss Fiske. Subsequently to the writer's meeting with her, she married Mr. Jackson, one of the engineers who located the Denver and Rio Grande Railroad. She died a few years ago. She was not confident of her gifts as a true poet, and her poems were issued simply under initials only, H. H. The book of poems was issued before her marriage to Mr. Jackson.

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ROBERT DOUGLAS.—This eminent and genial horticulturist, has been wintering in Waukegan, his earlier home, the first time in ten years; and the many admirers of his useful life-work will be glad to know he is in the best of health in spite of his advanced years. By the way it should have been his son (Thomas H.) to whom credit should have been given in the December number for the new facts in relation to the Snow plant.

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FILLEREE PLANT.—The fruit of many geraniums are like wooden pins, quite as much as they are like "stork's bills." In California two of the family have become extensively naturalized, and are known in common language, according to Mr. W. M. Bristol, of East Highlands, in the *Rural Californian* as *Filleree*, being a corruption of the Spanish *Alfilerilla*, a little pin.

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BARON F. VON MUELLER.—That "true love never runs smooth" seems as true of love in science as of love elsewhere. Australian papers tell us that Baron Von Mueller has retired from the Directorship of the International Academy for Botanic Geography—disapproving of several measures recently adopted.

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POMOLOGIST IN THE DEPARTMENT OF AGRICULTURE.—Prof. S. B. Heiges, of York, Pa., has been appointed to succeed Mr. Van Deman as Pomologist to the United States Department of Agriculture, dating from January 1st.

THE RESIDENCE OF HENRY SHAW.—Mrs. Frederick C. Johnstone, gives the following interesting account of the residences of the late Henry Shaw, the big hearted philanthropist, of St. Louis:

"The large brown-stone house, the summer home of Henry Shaw, is now occupied by the Superintendent of the "Gardens." The town mansion of brick has been brought here, and put up the same as it stood in the city. It is a simple plain three-story house. In the midst of all this loveliness is the beautiful mausoleum where rests the founder of this school of horticulture and landscape gardening. Through the elegant plate-glass windows we see his statue lying at full length, the drapery of his couch about him, and a full-blown rose and its leaves in one hand. The delicate tracery of each veined leaf, each petal of the rose, the long slender hand which holds it, the grand noble head, and each separate hair tell the wonders of a sculptor's skill."

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PARKS AND OPEN SPACES IN THE CITIES.—Philadelphia is getting a great deal of credit by proceedingly vigorously to provide open spaces and small parks over its wide territory, nearly 200 square miles; but the great city of London, in the old world, seems to be getting ahead of Philadelphia, by the report which is now on the Conductors' table. The park area of the city has been increased 1,000 acres during the past four years,—they claim now to have fourteen large parks and thirty open spaces, that are chiefly play grounds, and twenty-two small parks that have been fitted up as gardens, on which they spend for maintenance annually about one-half million of dollars. It is said that there is no item of taxation, which the people of London more cheerfully pay, than those for the maintenance of the small parks.

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THE COLUMBINE.—Our European friends do not take kindly to the suggestion of making the Columbine the American national flower. They say that Columbines grow as freely in the old world as in America. The same reason might have prevailed against making the rose the national flower of England,—for surely the rose is not confined as a native plant to the soil of Great Britain. The one thought which gives force to the suggestion of the Columbine for a national flower is not that it is exclusively American, but the curious coincidences, —the name *Columba*—a dove—in connection with the story of the ark finding new land; and Columbus,—still the dove—finding America. It is remarkably suggestive and, in spite of the opposition people feel to going deliberately to select a national flower, there really does seem to be more than usual force in the suggestion.

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THE ACCENT OF THE WORD "ARBUTUS."—A correspondent sends the following criticism, which seems, as parliamentarians say, "well taken":

"As to the proper accentuation of the common Pennsylvanian name of the *Epigæa repens*, I would like to see, presented in MEEHANS' MONTHLY, the following facts: 1st. The accent "árbutus" is undoubtedly correct if the name is to be regarded as a classical word. 2nd. But when it is used as the English name of the plant, the classical rule for quantity no longer applies. I could give a very long list of English words in which the rule is disregarded; indeed, in our mother-tongue it cannot be regarded as a rule at all. I will offer only a few words in proof of my assertion, viz: "attríbute," "untídy," "fállácious," "Octóber," "orgánic," "incísive," "astónish." This will suffice."

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AROUND THE WORLD.—This is the title of a beautiful geographical monthly, edited by the well known explorer, Prof. Angelo Heilprin, and published by the Contemporary Co., New York. The December number has a portrait of Mrs. Peary, and much interesting matter about Esquimoland and the Esquimos.

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MR. BETZ' CONSERVATORY.—It is said that the greenhouses and conservatory of Mr. John F. Betz, Jr., near Gwynedd, in Montgomery county, near Philadelphia, are unusually fine, and were erected at a cost of $50,000.

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BAD FOR THE MIDDLEMAN.—A recent orator at a grange meeting asserted that paradise was a happy place until the middleman came in with his yarn to Eve, and since then "thus has it ever been."

# GENERAL NOTES.

PRIORITY IN BOTANICAL NAMES.—The *Gardeners' Chronicle* of October 28 has a reasonable article on the present disposition to change so many names of plants because of the discovery that there were prior names given by other authors. In our time spruces which were under *Abies* have been turned over to *Picea*, and the firs formerly *Picea* given to *Abies* simply from the belief that some modern author did not perceive that the ancient Romans spoke that way. Numerous other plants have been treated thus until no one knows what the other is talking about. Dr. Masters seems to believe that botany was made for man and not man for botany, and that the study of botany is better served by stability in generally received names than it is by the attempts to honor ancient and almost forgotten men by digging up the names they gave to plants that they scarcely understood themselves.

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TEACHING SCIENCE IN THE SCHOOLS.—Science is little more than acquiring the habit of observation and comparison. As taught in most schools "Science" is not science, but resembles a dry skeleton with no life in it. It is especially amusing to go into some schools and see botany taught. Occasionally one may meet a successful teacher, but the greatest success of such a teacher is in implanting a love for those things in the pupils. When once they have acquired a desire to know they will do all that is needed of themselves thereafter. In every large city we may find a few rare instances of much success. A correspondent tells us of one in Hartford, Conn. Miss Alide B. Clark is the teacher, and the school is at 160 Market street. May the number of these successful teachers ever increase.

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LAWS AGAINST VEGETABLE ENEMIES.—So far as the conductors can recall no good has ever come from legislative bills against weeds or plant diseases. But still they come. Now it is the State of New York. Henceforth, "three competent freeholders," at "two dollars a day for each full day," or "one dollar for each half day," with "other reasonable charges," may be appointed by the Mayor in any town or city, as "commissioners," who are to go around and place a mark on trees "supposed to be affected," serve a notice, and the owner must cut away and burn within ten days,—then the commissioners are to do the neglected work, and the owner either fined $25 or sent to jail 15 days.

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HIGHER EDUCATION.—The great New England institution, Trinity College, which heretofore has had for its chief work the training of Episcopalian clergymen, is about extending its line of studies so as to bring natural history prominently forward as a leading study. President Smith seems likely to be successful in the new departure.

It is surprising that matters of this kind should have been so long left in the rear. The great founder of Christianity drew his leading lessons from natural history, and his teachings abound with references to natural objects. No teacher was ever the worse for a knowledge of things about him. It is to be hoped President Smith's efforts will meet all the success they deserve.

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PRUNING.—A correspondent says the brief paragraph on pruning in the October number broke away at once the whole mystery usually thrown around it, and made him feel that he always knew all about it, only he didn't know that he knew a thing about it until the paragraph told him.

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THE LUNG-WORT.—The main chapter in the next number will be devoted to one of our most beautiful spring flowers, the Virginia Lung-wort, *Mertensia Virginica*. It will not be seasonable only, for the beauty of the picture would give pleasure at any season of the year.

# MERTENSIA VIRGINICA.

## VIRGINIAN COWSLIP.

### NATURAL ORDER, BORAGINACEÆ.

MERTENSIA VIRGINICA, De Candolle.—Stem one to two feet high, nearly erect, angular, succulent, a little branched at the summit. Upper leaves lanceolate, gradually smaller than the lower, and becoming sub-sessile; lower leaves finally roundish-obovate, three to six inches long, on petioles two to five inches long. Racemes elongated in fruit. Corolla naked in the throat, nearly an inch long, with an annular tuft on the inside, near the base. Disk bearing two glands as long as the ovaries. (Darlington's *Flora Cestrica*. See also Gray's *Manual of the Botany of the Northern United States*, Chapman's *Flora of the Southern United States*, and Wood's *Class-Book of Botany*.)

Our plate shows the young flowers of a rosy-pink color,—the blue tint for which the species is so popular with collectors of wild flowers, appearing only as the blossoms open. It is remarkable that the floral emblemists, ever alive to any suggestion that might excite fancy, have made no use of this fact to represent some phase of human love or passion.

Poets have at various times attempted to illustrate this phase in human experience, by references to many things except flowers—the changing aspects of the moon being a favorite theme in this connection. Sir Walter Scott, in "Rokeby," describing a moonlight scene, has the following pretty lines:

"The moon is in her summer glow,
But hoarse and high the breezes blow,
And, racking o'er face, the cloud
Varies the tincture of her shroud;
On Barnard's towers, and Tee's stream,
She changes as a guilty dream,
When conscience, with remorse and fear,
Goad's sleeping fancy's wild career.
Her light seems now the blush of shame,
Seems now fierce anger's darker flame,
Shifting that shade, to come and go,
Like apprehension's hurried glow,—
Then sorrow's livery dims the air,
And dies in darkness, like despair."

One would only need to watch the changing tints of the opening blossoms of the Virginian Cowslip, to perceive how well it might be substituted for the moon, in this pretty piece of poetry, to express the same thoughts. But though there seems to be no direct allusion to this plant by the poets, prose writers often show how near it comes to igniting the poetic fire. The first blush of anger or shame might be well represented by the roseate tinge of the early bud; and the paler hue, as the flower progresses, be brought in to represent the growing intensity of passion as the first blush passes away.

In the Eastern Atlantic States it usually grows in damp woods, or shady meadows, where the blue is rather pale. In the open grassy prairies this blue tint is very bright. Referring to what were some years ago the prairies of Central Illinois, the Rev. Eward L. Greene thus enthusiastically writes of our plant: "We next come to extensive patches of *Mertensia Virginica*, which, with its nodding clusters of richest blue, presents a picture of surpassing beauty."

The Mertensias are not, however, the only plants that have the peculiarity of starting with "the blush of shame," going through "fierce anger's darker flame," to wear "sorrow's livery" as it fades away, for a number of allied *Boraginaceæ* share this character with it. But there is one point in which it stands almost alone among the representatives of this great natural order. They are nearly all characterized by a rough hairiness. This is so characteristic of the order, that at one time it was characterized as *Asperifoliæ*. But the Mertensias are smooth, and, as we may see in our plate, especially so. Though the flowers are usually of various shades of pink and blue, they are occasionally found white; and, by an expression of Mr. A. H. Young, in the *Botanical Gazette*, it might be inferred that white is not uncommon in some western localities. He says of Jefferson County, Indiana, "Mertensia, with its large clusters of white, pink, and purple flowers, adorns many a southern slope of the river bluffs."

In these modern times we are permitted to question nature as we will, and she has been asked why she changes from pink to blue or purple in this singular manner. Dr. Hermann

Mueller thinks she has told him why. Referring to an allied species of Europe, *Pulmonaria officinalis*, which behaves in the same way, he says, "the flowers change from red to blue as the flowers grow older, in order to indicate to intelligent bees which fertilize it, (in his country a species known as *Anthophora pilipes* is supposed to perform this office for this plant) which flower should be visited by them for their own end and the plant's profit." One bee, which he watched, visited 182 red flowers, to 10 blue ones. That such a purpose, useful to the honey-gatherer or pollen-collector, may well be served by this change of color is apparent ; but in later times botanists are not a unit in believing that every behavior of a plant is for its individual good. Many plants that depend wholly on insects for fertilization, have a hard time in getting along ; and, in the case of annuals, would be confined to a very limited area in some cases, and when some insects are locally absent in some years, might be doomed to total extinction. It is barely possible there is some other good to be accomplished by this change of color other than relates to cross-fertilization ; and it may be well for the student to continue to question nature on the subject.

The generic name *Mertensia*, was given by Albert William Roth, a celebrated German botanist, who between 1782 and 1830 wrote a number of botanical works. This genus he established in 1797. It was named for Prof. Francis Charles Mertens, of Bremen, author of a work on Algae. There are several distinguished men of this name—one, Charles Henry Mertens, also of Bremen,—F. C. Mertens was born in 1796, took part in the Russian expedition under Captain Lutké in 1826–29, and made a collection of plants at Sitka, dying soon after the return of the expedition to St. Petersburg. Previous to this the plant was classed as *Pulmonaria*, under which name its early history must be sought. Clayton, one of the earliest collectors in America, sent it from Virginia, and it is described by Gronovius, who edited Clayton's work, as a *Pulmonaria*—"*Pulmonaria non maculosa*," or not spotted. This is in reference to the spotted leaves of some of the old-world Pulmonaria, and from which the original genus derived its name. "So named," says Don, "from its being supposed to be a good remedy in disorders of the lungs (pulmones) ; or, according to some, from the spots on the leaves resembling those on some diseased lungs." The popular English name Lungwort, given to this genus and *Mertensia*, is thus accounted for. In reference to this, Dr. Griffith says, "they are all emollient and demulcent, but not more so than numerous other plants, which have no peculiar virtues attributed to them, and it is most probable, that they owe much of their renown to a lingering reliance on the doctrine of signatures ; for as the leaves are spotted somewhat like the lungs, it was supposed that they must of necessity be useful in the diseases of those organs." He then says of our species, the leaves of which are not spotted, "*P. Virginica* is stated to be astringent and demulcent, and is much used in some parts of the country in catarrhs and other disorders of the respiratory organs." It is hardly worth retaining the common name Lungwort for our Mertensias, as the old American name quoted in Gronovius from Clayton, "Mountain Cowslip," is very good. In the old world the original *Pulmonaria angustifolia* is known as "Blue Cowslip," and "Cowslip of Jerusalem." *Mertensia* was separated from *Pulmonaria* by its short, five-parted calyx, and the naked throat of the corolla, which is pilose in *Pulmonaria*. The nutlets are also ovate, while they are turbinate in that genus. The name *Mertensia* has been given by Willdenow to a genus of ferns, and by Humboldt to a genus of the family of Elms ; and these names are still in use by distinguished authors. These give the name *Stenhammaria* to our Mertensias,—a name which Dr. Gray uses as sectional, placing under it the *Mertensia maritima* of our northern coast.

The flowers are known as proterandrous,—that is the anthers mature in advance of the final growth of the pistil. When the flowers first open the anthers at once shed their pollen, and the pistil then presents the appearance in Fig. 1. But the next day the pistil has grown so long, that it is much exserted beyond the corolla, as noted in the paler flowers of the picture. We have taken our subject just as it is commencing to blossom ; when it is older the plant has a much more paniculate inflorescence.

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EXPLANATION OF THE PLATE.—1. An opened corolla, first day's flower, to show position of pistil at maturity of anthers. 2. Upper portion of flower-stem. 3. Root leaf.

# WILD FLOWERS AND NATURE.

## TWO CROWNS IMPERIAL.

(Fritillaria imperialis.)

Two crowns imperial for me!
To part with either I am loth,
And yet I think you will agree,
I surely cannot wear them *both*.

Were I Germania's Kaiser boy,
I might perhaps the thing contrive,
The dual baubles to enjoy,
And make my double kingdom thrive.

But as a child of Yankee birth,
These coronets of fatal gleam
Excite my democratic mirth,
But not ambition's vaulting dream.

I'll keep them for the giver's sake,
Apart upon my curio shelf,
No tyrant hand the crowns shall take;
Ere *that* I'll wear them both myself!

*W. Whitman Bailey.*

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GRAFTED HYBRIDS.—There is a strong belief that new varieties can sometimes be obtained by grafting. A branch of one tree grafted into another tree is sometimes said to assume the character of the stock as well as of its own, and that those two characteristics will sometimes go along together. Unfortunately very few actual experiments in this line have been made, and the theory is in a measure more of an after-thought than the result of any direct experiment. It has, however, been certainly ascertained that a variegated graft will communicate variegation to the stock,—and the writer of this paragraph certainly knows of a blood-leaved variety of the English birch having communicated the blood-leaved tendency to the stock; blood-leaved branches have grown out of the white birch, on which the blood-leaved scion had been worked. The writer has also attempted to split branches of apple trees longitudinally through the bud and put two kinds fairly together so that the divided buds approximate; in one of these branches used as one graft, a R. I. Greening and a Red Astrachan apple were so treated, and the result was that the subsequent growth produced the large white flowers of the R. I. Greening, while the fruit itself was the true Red Astrachan. This difference was very slight, but it seemed to indicate that there was some uniting of the two different species in the one subsequent growth. The most remarkable case on record is that of a kind of Laburnum, known as *Cytisus Adami*. This Laburnum was said to have been grafted on a species with purple flowers, and to this day, the branches will sometimes produce the purple flowered kind, and sometimes the yellow. Some doubt has been raised as to whether this is really the result of hybridization or a peculiar power in the plant to have polymorphic flowers; as this is sometimes known to be the case with the Dahlia, Rose, Chrysanthemum, and others. Dr. Macfarlane, of the Pennsylvania University, has recently contributed an able paper on the subject of hybrids. He finds that each species of plant has its own peculiar structure and character, and he finds in this *Cytisus*, these two characteristics going together, and in this way proves, from an entirely new standpoint, that the *Cytisus Adami* is really the product of hybridization as has been contended. It is a new illustration of the value of scientific study in determining practical facts.

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DIMORPHIC PLANTS.—This expression is now coming into general use as indicating plants which take on different characters at different times or under different circumstances. For instance, in some Honeysuckles, when the plants are young, the leaves are often cut or lobed along the outer edges. But when the plant is in flower, instead of this tendency to division, the opposite or union prevails, and the upper leaves are united, so that the stem seems to be going through them,—that is, perfoliate. Another illustration is furnished by the evergreen Euonymus. In its creeping condition it will adhere like ivy to walls or trees. Then it is *Euonymus radicans* of nursery catalogues. But at other times it grows as a stout upright, broad-leaved bush. Then it is *Euonymus japonicus*, and few would suspect its relationship to the creeping kinds. They are, in the language of botany, dimorphic forms.

MERTENSIA VIRGINICA.—In addition to what has been said of the Virginian Cowslip in the main chapter, it may be noted that Dr. Gray, in his *Synoptical Flora*, describes seven species as belonging to North America. With the exception of *M. maritima*, which loves to grow in sand close down to the salt water line, our species are rather mountain-lovers. Our Mountain Cowslip is the only one found east of the Mississippi river, and, in his language, it grows on "alluvial banks, New York to Minnesota, South Carolina in the mountains, and in Tennessee." The highest northern locality is probably Chenango River, New York, where it was gathered by Mr. F. V. Coville. In many localities it seems to be disappearing. In the vicinity of Philadelphia, it was once abundant, though now rarely met with. The specimen illustrated was found near that city, for our artist, by Miss Anna Howell. Dr. John M. Coulter says it was once abundant in the lower regions of the Wabash, in Indiana. Though long introduced into British gardens, where skill in flower culture is so common, it is not abundant. Philip Miller says it was introduced into that country from seed sent from the Virginian botanist Banister to the famous English gardens of Dr. Compton, Bishop of London, a rare lover of flowers of the past age. He adds, however, that it was growing in the Botanic Garden at Chelsea so early as 1699.

Mr. G. S. Miller, in the *Bulletin of the Torrey Botanical Club*, records his conviction that a plant growing in his garden changed from purple to white after some years, independently of the agency of seed.

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THE USE OF SPINES TO CACTUSES. Mr. F. N. TILLINGHAST, Greenport, N. Y., remarks:—"According to the paragraph on *Opuntia rutila* in the January number of the MONTHLY, the part which the spines play in the economy of the plant seems to be problematic. If *O. rutila* has no existing natural enemies against which its spines are a protection, it would be interesting to know if any animals have ever lived, since the time when this cactus came into existence, that might have eaten and destroyed the plant, had it not been for its defensive armor of spines.

May not the spines have survived the natural enemies of the plant, and therefore, the use for which they were created? And may not those cactuses 'with few or no spines' have advanced a step farther in the scale of evolution, by casting off these sharp appendages, which, in the absence of natural enemies, have become useless?"

In reference to these inquiries it may be remarked that it is usually understood that changes in plants, generally considered under what is termed evolution, are brought about by gradual modification through a long series of years. If, therefore, cactuses without spines found trouble from predaceous animals, and desired spines to protect themselves, they would all be eaten up by the animals before the long series of years required in order to produce perfect protective spines, had passed away.

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CHANGE OF CHARACTER IN THE PANSY-FLOWERED BIRD'S FOOT VIOLET. Mr. C. F. Saunders, Philadelphia, has the following curious experience.

"Is my observation at fault, or do the two purple petals of *Viola bicolor* really fade away to the light blue of the others, when old? A bunch of violets, which we received from Virginia the other day, and which seemed composed of *V. bicolor*, with only one or two exceptions, is now withering, and there seems to be as many flowers with uniform light blue petals, as those having the two dark velvety petals characteristic of *V. bicolor*. I hardly think I was so blind as to mistake the character of the bouquet, as the presence of so many light-blue flowers to-day would indicate."

They probably fade as suggested, but the observation is wholly new. If so the same circumstances ought to be apparent in cut flowers of some pansies.

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PROJECTION OF SEEDS FROM CAPSULES.—Referring to the projection of seeds in the Oxalis and Garden Balsam, a Charleston correspondent refers to the same circumstance in the seed vessels of violets. It is believed that these are projected by the drawing together of the edges of the valves, thereby pressing the seeds out, just as a nut or similar object might slip through the finger or thumb when pressed. These methods of nature, employed to distribute seeds, are well worth the attention of students of the curious.

THE CONNECTION BETWEEN EARLY GROWTH AND VIGOR. — The New York *Independent* notes that some remarkable facts in regard to the character in connection with variations have recently been recorded, as derived from experiments with the common garden pea, made in the Jamaica botanic garden. Garden peas it may be noted, are selected by horticulturists chiefly for their earliness of bearing, abundance of crop, or peculiar flavor of the cooked pea. No one has thought of looking further into the subject of scientific interest till now. Forty-three named varieties were sown on the 4th of April, when it was found that each kind had its own set time for germinating and appearing above the ground. Sixteen appeared eight days after sowing, thirteen nine days, nine ten days, and five kinds took eleven days to grow. Each variety seemed to have its exact time of blooming. A variety called American Wonder had every plant opening its blossom thirty-five days after sowing, while the British Queen did not flower till after sixty-four days. It was discovered that vegetative vigor and time of flowering were co-relative, the strong, vigorous varieties being always the last to bloom. The main scientific deduction confirms the proposition of modern science, that tho' we do not know how variation is brought about, once brought into existence, it is hereditary.

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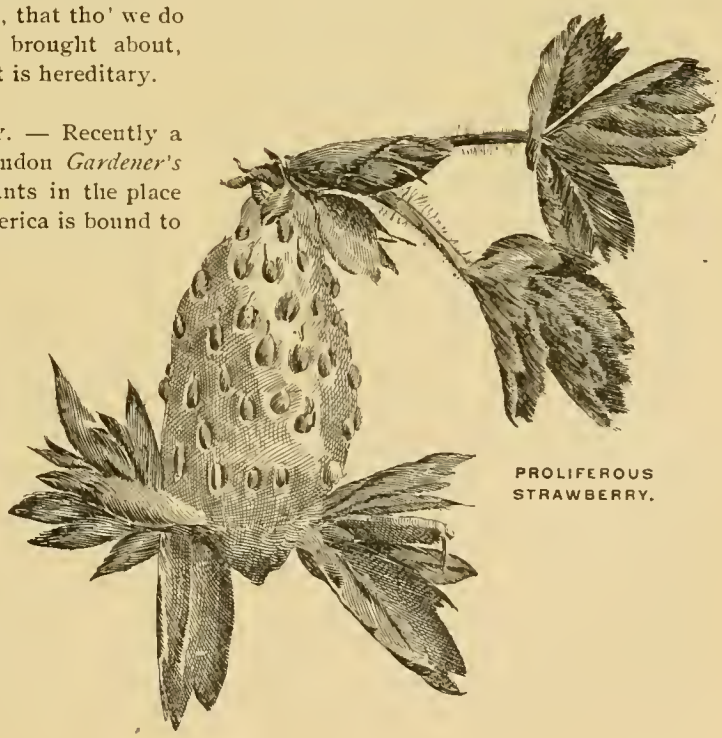
PROLIFEROUS STRAWBERRY. — Recently a figure appeared from the London *Gardener's Chronicle*, showing young plants in the place of seeds on a strawberry. America is bound to go ahead of the old world, and California has successfully managed it. Mr. Luther Burbank, of Santa Rosa, whose intelligent observation occasion has frequently been taken to commend, sends the photograph. A perfectly formed plant from a short runner has grown from the apex, while the calyx is more than usually foliaceous. These abnormal forms are very instructive. They furnish the hints out of which we learn nature's methods of doing things.

SCILLA BIFOLIA.—The flowers of this Squill are small individually, but being produced close together in a short raceme they are very attractive, from their star-like form and bright blue color more or less tinted with violet. As the specific name indicates, there are only two leaves to a bulb. Those who like collections of Squills will find some variations in this one, for there are varieties with reddish or rose colored flowers, and others with white flowers. The type is moreover the best, and the beauty of the rest is best seen and appreciated by contrast. The best effect is produced by planting the bulbs in a clump, not in the old-fashioned way of allowing the bulbs to get crowded, but by allowing 1½ in. to 2 in. between every two bulbs so as to allow of some room for increase, as then the bulbs get better nourished and the foliage is not unduly crowded. The flowers never fail to appear in March, sometimes in the early part of it, and in late cold springs more especially they make their appearance above ground rather in advance of other subjects and generally before the other well-known early Squills, such as Scilla sibirica. The whole family is hardy, and makes excellent border flowers.



PROLIFEROUS STRAWBERRY.

THE LOVE FOR WILD FLOWERS. — One of the best signs of the growing love for wild flowers and nature, is the interest which purely agricultural papers show on the subject. Papers having no relation whatever to the mere dollar and cent phase of agriculture, appear frequently. That excellent weekly, *The Country Gentleman*, well illustrates this point. Beginning with December the 1st, a series of articles on our native orchids commenced,—the first one treats of the *Cypripedium*. The article shows that our native species, that we see in green-houses, are quite as beautiful as anything from the tropics. The popular name for *Cypripedium* is Lady Slipper. The best known, it says, is the stemless lady slipper—*C. acaule*. It says it is very common in Southern Michigan, and has its western limit in Minnesota. It gives a full explanation of the curious manner in which bees fertilize these flowers. There are two yellow flowered species, one *C. pubescens*, which is the larger one, and the other, *C. parviflorum*,—both are very fragrant. The author is inclined to believe that the two are varieties of each other. Then there is a white one, *C. candidum*, not abundant anywhere, but scattered through bogs all the way from New York to Minnesota. The different species are not often found growing together, but the author of the paper has found as many as four together in one place. The most odd-looking of all the species is the Ramshead Lady Slipper—*C. arietinum*. It is rare and somewhat inconspicuous. It grows in tamarack swamps in Southern Michigan. The most beautiful of all is the *C. spectabile*. The stems are often found two feet high—white, yellow and purple shades being in the same flower. Articles on other orchids appear in the subsequent issues.

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PROPULSION OF SEEDS FROM CAPSULES.—Mr. W. F. Bassett, Hammonton, N. J., makes a good point in the following paragraph :—

"In MEEHANS' MONTHLY for December, some notes about the forcible expulsion of seeds by certain plants, are placed under the heading 'Irritability of Plants.' Is this properly 'irritability'? It appears to me that it is rather the result of a gradual operation of nature, by which the seeds grow and swell, so as to crowd against their prison doors, and the latter in the process of ripening, either soften and weaken or dry and harden, so that the heat of the sun warps them, and in either case, with this class of plants, the last tie gives way suddenly and the seeds fly. The flowers of some Œnotheras open instantaneously upon the same principle. The opening of the capsules of the Garden Balsam, when taken hold of, is simply the result of hastening what would otherwise happen in a short time without assistance. The closing of the leaves of the Sensitive Plant and others, in the same manner, is an entirely different phenomenon."

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THE GOPHER PLANT. — When travelers crossed the plains at the time when the Pacific railroads were first built, a beautiful plant called *Euphorbia albo-marginata* used to come up frequently along the railroad tracks, which the laborers believed to grow from seed that had been waiting there to sprout since the flood. They called it "Snow on the Mountain," because the bracts under the flowers such as we see in *Poinsetta* and other euphorbiaceous plants, were striped with white amongst the green. It is now stated in California circles, that where this plant grows, gophers will receive notice to quit. It is remarkable that it is said of another euphorbiaceous plant, the Castor oil plant, that where it is grown, moles will never appear. No one has put great faith in this statement, but that two plants of the same family should be watched by two classes of observers wholly independent of each other and be reported to have exactly the same effect on destructive rodents, indicates that there must be something certain, to bring about the like conclusions.

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VARIATIONS IN NATURE.—Mrs. S. Tucker, of Cheney, Washington, referring to a recent paragraph in MEEHANS' MONTHLY, that double flowers originate in nature quite as frequently as under the hand of the florist, calls attention to a number of cases in the wild flowers of that region, in which there is a disposition to an increase in the number of petals, showing a tendency to the double-flowering state. She mentions one of the early buttercups, *Ranunculus glaberrimus*, and *Lewisia rediviva*. *Camassia esculenta* has sometimes a perianth of seven or ten segments. *Sisyrinchium grandiflorum* has frequently eight segments, without any change in the usual three stamens.

# GENERAL GARDENING.

## THE EXOTIC FLOWER.

"How camest thou hither? From what soil,
Where those that went before thee grew,
Exempt from suffering, care and toil;
Clad by the sunbeams, fed with dew?
Tell on what strange spot of ground
Thy rock-borne kindred yet are found,
And I the carrier-dove will be
To bring them wondrous news of thee."
—MONTGOMERY.

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LIFE OF THE PHYLLOXERA.—The New York *Independent* remarks that a remarkably interesting paper, connected with the history of the phylloxera, the great foe to grape culture, has been contributed to *Zoe*, a live biological journal, of San Francisco, by Prof. H. H. Behr. The small insect, as is now well known, feeds on the roots of the grape, covering the roots with a mass of small galls, about the size of grains of rice. They live here continuously, and, Professor Behr says, have no power to travel to any great distance after being once regularly located. They reproduce themselves in continuous generations among the roots of the vines on which they are first colonized. It is only after a large number of these successful reproductions that a series are produced which are winged; and it is this young generation that flies away and introduces the insect as new colonies some distance away. After the insect is fairly colonized around the roots of a grapevine, he says, its defective capacity of locomotion are of such a character that it would take a year to cross a girdle of two feet, even if the insect could live so long in its perfect condition, and would move in one direction during all that time. The only way to get rid of the insect around any one vine, is to destroy the vine itself, as the insect can live only on living roots; when the roots die the insect ceases to exist. One of the most interesting facts brought out by Dr. Behr is, contrary to the usual impression, that the winged young insects, which form new colonies, do not come in a regular succession of cycles, but only appear at times when it is necessary for the insects' preservation that new colonies should be formed. Whenever food gets comparatively scarce, and the insects are in danger of starvation, the broods of winged insects come into existence. When, therefore, a vine is destroyed, and its roots, consequently, soon after die, a brood of winged insects appears. As a practical measure of confining the insect to limited locations, therefore, Dr Behr suggests that if a thick layer of gas lime is placed around the grapevine when it is being destroyed, winged insects cannot penetrate through this layer and are, therefore, destroyed. A layer of gas lime, therefore, is a fair preventative of the dispersion of the insect. Professor Behr further states that in vineyards, where the living grapevine roots are abundant, he doubts whether a colonizing race, that is to say, a winged brood, is often produced. After many years of observations, he has failed to find winged insects in situations where they ought to be found; but if he takes vine roots infested with galls, and places these vine roots in propagating jars, where the roots are, in a measure, dying, a brood of winged insects is at once produced.

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MISSING LINKS. — Japan plants are often identical with the plants of the Eastern portion of the United States, and occasionally furnish "missing links." The white-flowered dogwood of our woods, by the second or spring growth of the bud scale develops so as to simulate a large white involucre. In Japan there is a wood-loving plant, with leaves like our dogwood, and with similar white pseudo-bracts or involucres; but the berries, instead of being separate, as in the American plant, form a syncarp for all the world like a huge strawberry. It is not regarded, therefore, as a true *Cornus*; but as a superior development, and named *Benthamia fragifera*.—*Independent.*

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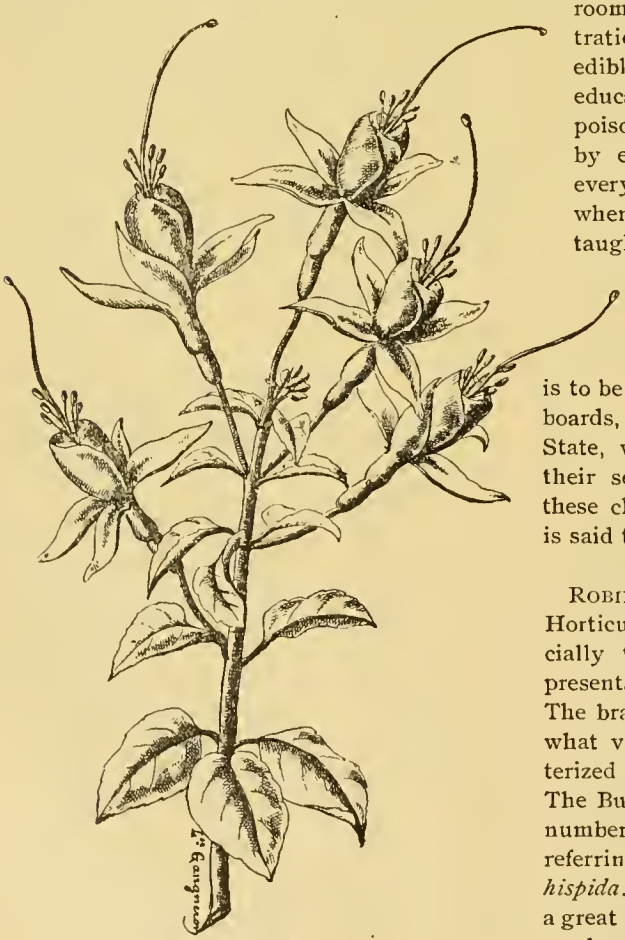
STERCULIA PLATANIFOLIA.—This is a popular shade tree in Japan, and ought to thrive well in our Middle States. The leaves are in shape and size like our Buttonwood.

THE RANGE OF VARIATION OF PLANTS.—It is a trite saying that there are no two things in the world exactly alike. Philosophy has endeavored to explain why this variation or the other variation is of advantage to the species, but it is likely that while as a main principle form is of essential service to physiological functions, in many of the details variation in nature is for the sake of variety alone. There seems to be no end to the range of variation. Who would ever have thought of an erect-flowered Fuchsia? In all their various forms they have still been pendulous,—and indeed the utility folks have shown how essential to the good of the plant the pendulous form was, by arranging the stamens so that the pollen could fall to the stigma. But now we have an upright form! *The Lyon Horticole* has brought this curious production to notice, and which will surely interest the readers of MEEHANS' MONTHLY.



UPRIGHT FUCHSIA

MUSHROOM CHARTS.—All the States of the Union, as well as the United States Government itself, feel it their duty to encourage by all legitimate means, the cheap production of food, and hence we have agricultural reports, and other aids to agriculture and horticulture, everywhere.

Besides this, money is frequently appropriated in many ways for the dissemination of information that would lead to cheapening or utilizing food. It is remarkable that nothing has been done in connection with a sound knowledge of Mushrooms. As already noted in MEEHANS' MONTHLY the larger proportion of the Mushroom family are edible and nutritious, and it is deplorable that such an immense amount of valuable food is suffered to go to waste, simply from the ignorance as to the few which are poisonous. The State of New York is to be asked to freely issue Mushroom charts, that is to say colored illustrations of the noxious kinds and of the edible kinds. There is no other way to educate people as to how to distinguish a poisonous from a harmless Mushroom, than by exact teaching in each case. Almost every one knows the ordinary Mushroom when they see it, because experience has taught them to distinguish it, and what is true of the common Mushroom is true of all the rest. When these charts can be properly disseminated with this valuable information, it is to be hoped that the members of agricultural boards, or other similar institutions in each State, will take in hand and recommend to their several legislatures, the preparing of these charts, just as the State of New York is said to be about to do.

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ROBINIA VISCOSA. — The Bulletin of the Horticultural Society of Tuscany refers especially to the great beauty which this plant presents in the gardens of the old world. The branches are green and warty, and somewhat viscid, and in this way is well characterized from the other species of the genus. The Bulletin goes on to describe a very large number of beautiful varieties, some of them referring to *Robinia pseud-acacia* and *Robinia hispida*. Of this last named species it records a great number of beautiful varieties in Italian gardens.

PLAY GROUNDS IN CITY PARKS. — Public parks have been chiefly regarded as mere breathing spots, where people could sit in summer shade, or ride or walk through paths or drives, admiring a beautiful picture in landscape gardening. The wants of humanity in the shape of physical exercise, and of children for good play grounds, have seldom been considered. It is a pleasure to note that Boston is leading in the march for better things. The park commissioners have recently arranged a series of tracts, now known as the "Charlesbank Gymnasiums," with a special view of supplying these wants. In order to help along this good work, we give this month two ground plans of the arrangements—one for men, one for women and children, and a detail sketch showing how the little girls enjoy themselves. The designs are by the eminent landscape gardener, Frederick Law Olmsted. It is to be hoped that in all cities projecting public parks these practical every day pleasures will be as much regarded as mere pictorial beauty.

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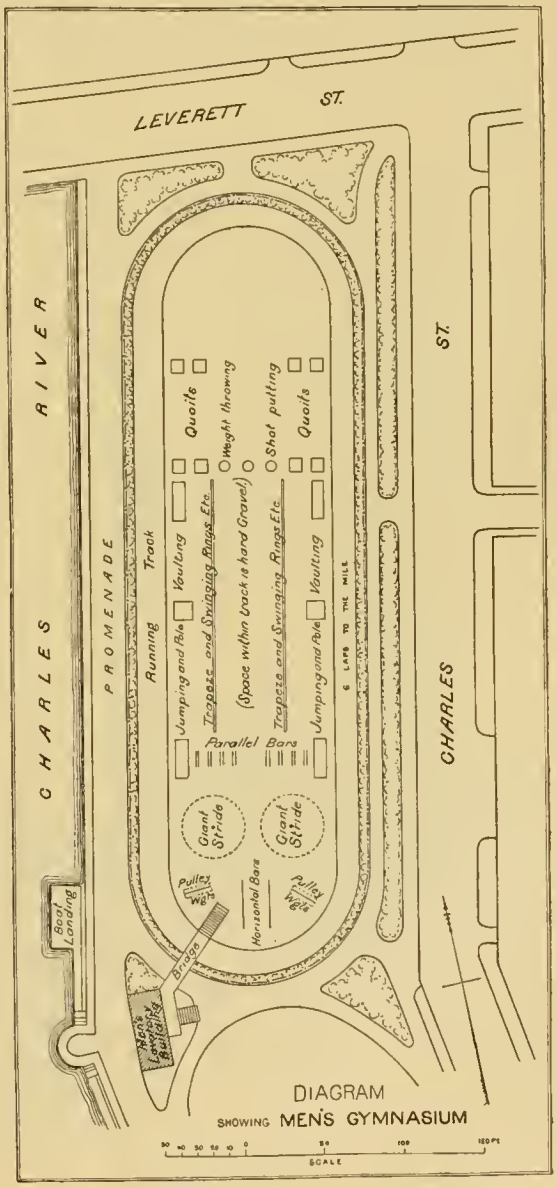
PUBLIC GARDENS AND PUBLIC GARDENERS.—In an article in a recent issue of the Philadelphia *Ledger*, a distinguished Philadelphia horticulturist has pointed out the remarkable fact that Philadelphia has no city gardener nor any established body which has charge of its city trees, or public squares, —and in the course of the article gives special credit to the City of Boston for magnificent work done by the city gardener, Mr. Doogue. The *Boston Post* of recent date, has a special editorial on one of these Boston gardens which it describes as an exceptionally beautiful one, and thinks that if people were charged a small price of admission it would be visited far and wide by the lovers of floral beauty. It is pleasant to see a great public newspaper like the *Post* giving this good credit to its city gardener; and it has been a subject of regret to the writer of this that, not only Philadelphia, but some other cities that might be named, have no care-takers of public flowers or public trees. Little by little, however, public sentiment is growing in this direction, and before long all cities will be beyond this reproach.

THE GREAT MAMMOTH TREE IN PHILADELPHIA.—Mr. Joshua Pusey kindly says :—"The trunk or stem of the tree was beheaded some 25 feet from the ground, instead of 10 feet. It is 10 feet from the ground to the first limb. The tree is now about 30 feet in height, and would be quite 40 feet had it been left intact. Its head is the shape of half an egg, and quite regular and compact. The trunk is about 5½ feet in circumference an inch from the ground, and 4 feet, six feet from the ground." Correcting the article appearing in January.



THOUGHTS ON TRANSPLANTING. — Many people ask, when is the proper time to plant trees, in the fall or in the spring?

This is a question which has been asked thousands of times, and been answered both ways by people who have had special success, in the spring or fall, as the case may be.

Now, according to the studies of those who have used their eyes and experiences on the subject, one time is as good as the other. Trees in full health transplanted in the spring go on pushing their leaves and making young fibres on the roots as if nothing had been done to affect their usual habits. In trees as in a human being, health is a great factor in success. A good sound, healthy person who loses a finger or even a hand, feels or exhibits no signs of the trouble he has gone through. The blood is good and sound and goes on healing the wounded parts.

So with a tree: the spring is the healthy time of all nature; all plants are in their best health, and they naturally feel less the damage done to them than at any other time.

Planting in the fall also has its benefits, even perhaps more so than in the spring. In early fall transplanting, the leaves are picked off, and the tree is again planted. The advantage the fall planter has is this: the tree, we may say, has gone to sleep for the winter, the leaves being off, they do not need the life giving strength of the roots, which possibly may have been injured in the digging, and need all their strength for themselves. What does it matter if we *take* the leaves off, instead of waiting until they fall off? Does not winter weather sometimes come early, and again it comes late in the year? Two or three weeks make no difference, the trees are always prepared, and, "have gone to sleep."

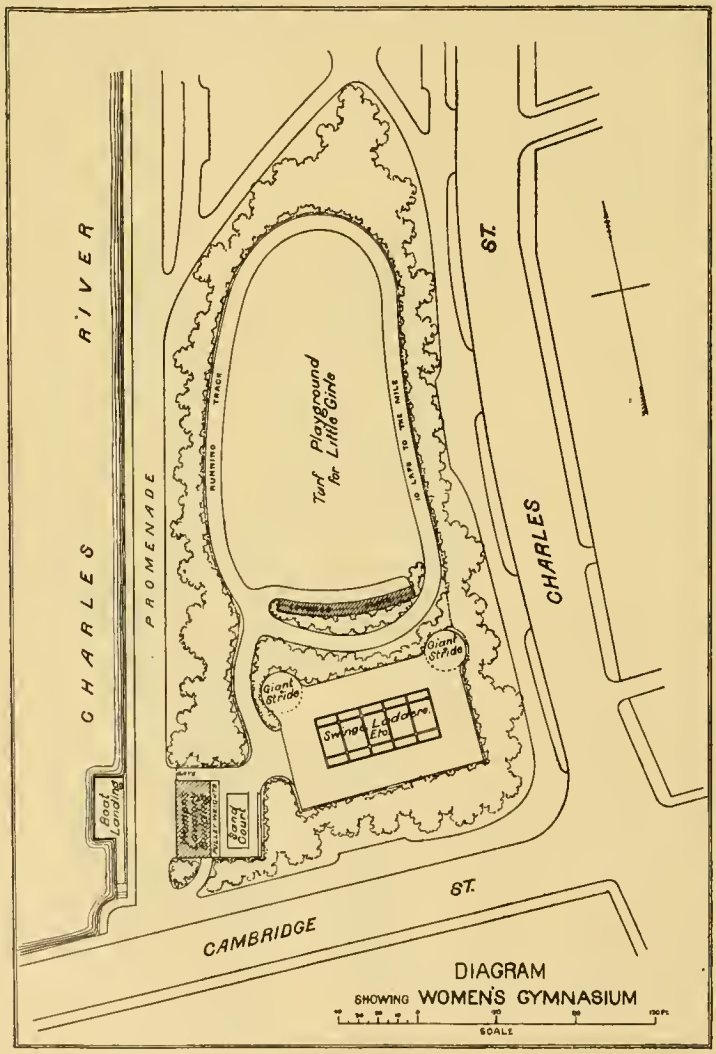



DIAGRAM SHOWING WOMEN'S GYMNASIUM

SCALE

To return to the planting, we see the tree suffers very little or none by the leaves using the strength of the tree. Another point is that when spring does come, the plant has been made solid in its place, by the winter months.

In the first part of the article we say that it makes no difference whether trees are planted in the fall or spring. There is one exception in favor of fall planting, and that is in the larch family. Larches planted in the fall are invariably successful, while those planted at other seasons only pull through after a hard struggle.

Evergreens can be transplanted during the summer.

(See page 41.)

HARDINESS OF THE CRAPE MYRTLE.— Mr. Ernest Walker, New Albany, Ind., says :

"A friend who was recently at Bowling Green, Ky., informs the writer that the Crape Myrtle is hardy there, and says he saw and examined bushes that had been in the "open ground" for several years. It is interesting and surprising to learn of this East Indian shrub being hardy so far north. Many plants, however, while tender ordinarily, prove much hardier than they are supposed to be, when strong stocky plants are put out in the spring (which allows them to be established by fall), and when the first one or two winters are favorable. This the writer has found to be in the case with several Tea-roses, which are commonly thought to be "tender" in this locality. Among these are the Catherine Mermet, The Bride, Gen. Sartas, Amazone, Marie Ducher, Mme. Lambard, and one or two others.

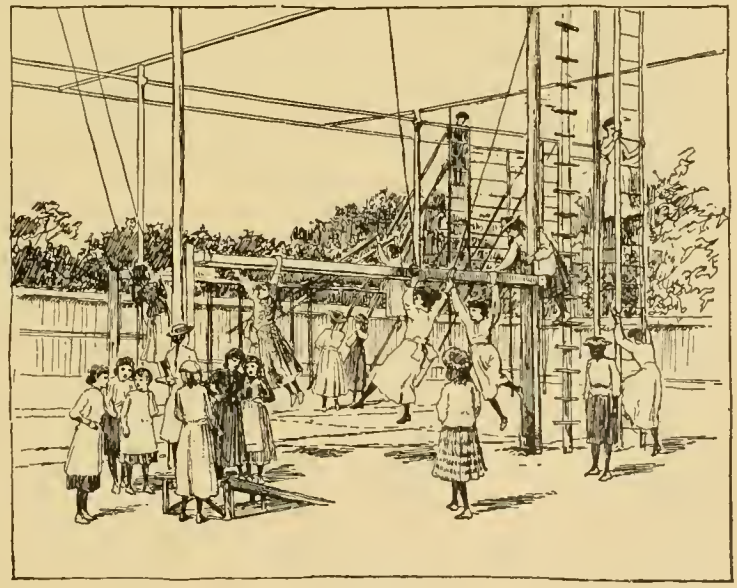
Kentucky is given as the northern limit of the Spider Lily—*Pancratium rotatum*,—but the writer has found the botanical limit is not the horticultural limit. A few years ago some of the bulbs were accidentally left out all winter. They passed through all right, and have since been found to be perfectly hardy here. And it is not unlikely they may be found hardy even farther north. So with the Crape Myrtle."

Near Philadelphia, it usually kills to the ground, but shoots up and flowers beautifully like a herbaceous plant.

BLUE PERSIAN LILAC.— Under the name of Blue Persian Lilac, a Galveston correspondent sends specimens which prove to be *Duranta Plumieri*, a West Indian plant. It grows there as a pendulous shrub six to nine feet high, with a profusion of lilac blue flowers, succeeded by amber colored berries, the size of peas. It makes a lover of flowers proud of the United States, when in a part of her dominions we can grow in the open air at all seasons these beautiful sub-tropical things.

## FRUITS AND VEGETABLES.

THE BARK OF FRUIT TREES.—As a general thing healthy trees are able to get rid of the old bark without any help from the cultivator ; but in many cases they are all the better for having a little help from man. In many species of trees, there is an arrangement provided by nature, for helping the plant to get rid of its bark. These are called, in scientific language, "suber cells ;"—that is to say, cork cells. These appear at first on the outer bark, as small brown spots. From year to year, however, they develop,—sometimes eating into the bark in longitudinal lines, and in this way form the cracks which ultimately result in what is known as rough bark. As it is thus the design of nature to get rid of the outer bark, it is good practice to help nature in this work. For this purpose, washes of various kinds are found in practice extremely useful. In fruit culture, soapy solutions have been found very effective ; and in the unscientific work of successful farmers even lime wash has been found beneficial. In some of the interior counties of Pennsylvania, a farmer would almost as soon think of never cleaning his horses, as letting his orchard trees go without a coating of lime wash once a year. The practical results of this treatment speak for themselves. No healthier trees, or more successful fruit crops can be had than result from this practice.



(See page 41.)

THE ESTATE OF JOSEPH S. FAY, WOODS HOLL, MASS.—The Committee of the Massachusetts Horticultural Society, which has in charge the very pleasant duty of examining the gardens and estates of patrons of horticulture in Massachusetts have words of praise for the fine estate of the Hon. Joseph S. Fay, which comprises between 700 and 800 acres,—a large portion in farm ; but still a considerable area devoted to garden and forestry purposes. Mr. Fay is assisted in his good work by Mr. M. H. Walsh, the gardener in charge, of whom the Society speaks very highly. A very large proportion of the wood around, is chiefly made up of Scotch Pine ; but Mr. Fay regrets that he did not use our native pitch pine, *Pinus rigida*. (It may be remarked that Mr. Fay is famous for his interest in forestry—75 acres have been established by himself, from seed, and 25 acres by the transplanting of trees from the nursery.) He finds that the white pine does not thrive, where exposed to winds from the ocean. Strange to say, the pine trees, when they grew up afforded shelter for many birds, and especially the blue jay, which brought the seeds of hardwood timber trees, in order to eat at their leisure, but of which many escaped being used as food, and from these, a large number of oaks and deciduous trees have sprung up ; and now there is a fine oak forest in places where originally only pine seeds were sown. The 25 acres of deciduous trees remain chiefly as they were when planted. Some of these, notably the larch and birch, are 40 feet high and 20 inches in diameter. The Committee think that close planting for forestry purposes is a too common mistake, and that this forest would have shown even better results than it does now, if they had been thinned at an earlier stage. In the gardens, the rose is the especial favorite,—and it is worth noting that Mr. Walsh, the gardener, thinks it is best to transplant roses in November. The plants are protected during the winter by leaves placed on about six inches deep, with some brush to keep the leaves from blowing away. In March the leaves are removed and the plants pruned —the free or climbing roses having their shoots left much longer than those of dwarf habit. As soon as the young leaves begin to show, the plants are dusted with white hellebore. This is applied once more during the season. He finds sulphur sufficient for the prevention of mildew ; for green fly, he applies a solution of whale oil soap. When the buds are fairly formed, he waters the roses with liquid manure. In order to get fine roses, he pinches out the weaker buds, leaving only one to flower on a shoot. He gives the hybrid perpetual roses a good pruning immediately after flowering, cutting out most of the old wood ; and has grand flowers by this plan. They push out a new growth and produce nice flowers in September, until the frost comes. The hollyhock is a very popular flower in Mr. Fay's collection. Mr. Walsh sows the seeds in June, transplants them in October, covers with leaves early in December, removes the covering in March, and forks the bed over in which the plants are growing. During May and June they have water once a week, unless rains are frequent. Weak plants are cut out. The bed last year contained 350 plants, and with the stalks, of from 35 to 40 flowers to each, in full bloom, must have presented a magnificent sight. The vegetable garden consists of four acres, in which small fruits are cultivated. He finds ground bone and sulphate of potash one of the best manures for the onion ; and he finds, in that more northern part of our country, that plants raised from seed early and transplanted make as good, if not better onions than those raised from sets, which is the most popular way. He finds the cauliflower thrive remarkably well ; the seeds are sown in a hot bed, the last week in February, and transplanted into very rich soil. He has heads fit to cut by the last of May. They delight in abundance of moisture, and rich, well rotted stable manure. He remarks that lettuce to be of first quality, should have soil richly fertilized by ammoniacals. He thinks that hard, medium sized heads are better than varieties which produce very large ones.

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SOUTH PACIFIC APPLES.—Apple growers in Tasmania, made a determined effort to compete in European markets with the apple growers of Canada and New England, but have finally abandoned the effort, because of the heavy freight charges. The apple growers of North America will always have an advantage in the high coloring which the climate gives to their fruit. Australian apples generally have a good flavor, but beauty always scores a point.

IMPROVING FRUITS BY CROSSING.—Mr. Jos. Kirchgraber, of Springfield, Mo., believes that a chapter on the fertilization of fruits and flowers will be interesting to the readers of MEEHANS' MONTHLY. There is very little to explain in connection with the subject, and probably this brief paragraph will fully meet the question. The stamens of a flower produce pollen, and flowers cannot be fertilized unless this pollen reaches the pistil, the pistil being the terminal point of the ovarium, which is in the centre of the flower, and eventually contains the seeds. There is a certain period in the life of flowers, when the anther cells burst and expose the pollen; and there is a certain period in the growth of the pistil, when the apex, or stigma, bursts and exposes a liquid secretion. The only art in fertilizing flowers, is to note, which can readily be done by a small pocket lens, when the pistil is in receptive condition. When the pollen is applied at this period, the ovarium becomes fruitful. It so happens that in some flowers the stamens will mature the pollen before the pistil is receptive; or perhaps the stigma will be receptive before the pollen is matured on the stamens; and this is frequently the reason why so many flowers are infertile. The pollen matures and disappears before the pistil is ready to receive it. One can only learn these things by observation; but with a little practice an experienced person soon becomes adept in the art. In the actual work of crossing, the practice is to keep a certain point in view. For instance, we may have an apple which is sour or small but would like to have a variety of sweeter characteristics or larger. We take the pollen from a tree with large or inferior fruit, and apply it to the smaller one which we wish to improve. The result is that the seedling apple will in all probability be very much larger than the female parent, and in this way improved kinds are brought about in the line that the operator desires.

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A FINE GRAPE VINE. — Cultivators have frequently noticed that the severe pruning of a grape vine to keep it dwarf has a tendency to lessen its vital power; but yet, notwithstanding this weakening of vital power, it is absolutely essential at times that fruits should be severely pruned, in order to keep them within certain bounds, or for other good economic reasons. Where, however, a vine can be allowed to extend as it naturally desires to do, the result in longevity and productiveness is very remarkable. One of our subscribers, Mr. Lorin Blodget, who, besides his eminence as a statistician, is extremely fond of amateur gardening, which he pursues with great intelligence, has a vine of the Lindley variety growing in his garden in Philadelphia, which rises 35 feet, completely covering the eastern part of his house, and extends from a trellis in the yard 20 feet from the ground, to some 75 feet in length. It has about 20 main branches, which are an inch or more in diameter each, and the main trunk is 15 inches in circumference. In the year 1890 the crop was weighed, and found to be 450 pounds. The Lindley, by the way, is one of the very best grapes for amateur culture, although it was one of the earliest of the introductions of hybrid grapes. It often has the proclivity of producing fruit without making seeds, just as the currant of commerce, which is a seedless grape, does. In this case, as in the case of the currant, the seedless grapes are only one-half the size of those which are normally produced, and have the appearance of being Delaware grapes interspersed with the real Lindley. They afford an admirable lesson as to the nature of the currant of commerce.

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THE BALDWIN APPLE.—Many persons ask why it is that an apple so comparatively poor in quality should be so universally grown, and form the chief stock of what is offered during the winter in the markets. Certainly there are numbers of much better flavored kinds But the fruit grower who supplies the market necessarily looks to profit beyond all things, and the Baldwin happens to be a tree which has a remarkably hardy growth and bears very abundantly,—and the apples are so sturdy in keeping qualities that it is no wonder it receives the particular attention of those who plant to supply markets. If one is satisfied to have trees not quite so sturdy and vigorous, more liable to the little troubles that bother the fruit grower, and desires to have high flavor, beauty and other qualities independent of great productiveness, there is a very large list to choose from. Raisers of seedlings should aim at uniting both good properties. Such a variety would be welcomed by all fruit growers.

# BIOGRAPHY AND LITERATURE.

THE ROUGH EXTERIOR.

Ah, March, we know thou art
Kind hearted, spite of ugly looks and threats;
And, out of sight, art nursing April's violets.

HELEN HUNT.

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GEORGE W. CHILDS.—"George W. Childs is dead!" was the sad expression that fell from many thousands of lips in the great city of Philadelphia on the morning of Saturday, February 3d, 1894,—and scarcely one but had something to tell of a kindly deed done by this great and good man, that his neighbor had never known. Long before these lines reach the reader's eye, he will have read elsewhere the romantic story of the great self-made man—a lesson of immense value to the young and struggling for ages to come. Horticulture, with so many other interests suffers a great loss by his death. His beautiful country place near Philadelphia did much to encourage the love of gardening in others,—while his personal influence as President of the Pennsylvania Horticultural Society, went far towards perpetuating the great work which this famous institution has been so long engaged in.

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PROFESSOR CHARLES R. BARNES.—Botany and gardening are so closely related, that prominent botanists have always an interest to the mere lover of gardening and wild-flowers. Among the younger generation coming forward into great prominence, few stand higher than Professor Charles R. Barnes. He was born at Madison, Indiana, on the 7th of September, 1858. His first love seems to have been given to chemistry, but he attended the summer school of botany at Harvard University in 1879 and 1880, when his attention to the amiable science, as botany is called, seems to have been fixed. In 1880 he was appointed provisional instructor in botany at the Purdue University, and became full Professor of botany and geology in that institution soon afterwards. In 1885 and 1886 he took a special course in botany at the Harvard University, giving attention especially to the botanical garden. In 1887 he was made Professor of botany in the University of Wisconsin, which position he has ever since held. He is one of the editors of the *Botanical Gazette*, and has recently been engaged in preparing a new edition of Dr. Gray's "Field, Forestry and Garden Botany."

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THE FLOWERS OF SHAKESPEARE.—More and more interest is taken in everything relating to Shakespeare and his works as the world grows older. The identification of the flowers referred to by the great poet and play-wright are among the special points receiving marked attention just now; for, as botany was then not a science, and no botanical names would be employed which would make their identity clear to intelligent people, Shakespeare would only employ the common names in use at the time, and which unfortunately do not stay common long enough, as a general rule, to last from generation to generation. The result is the necessity for great research as to what plants were referred to by the great poet.

Rev. Canon Ellacombe, of England, has written a work to endeavor to make clear what Shakespeare meant,—and just now a lady of Philadelphia is engaged in making water-color drawings of them, with, it is understood, the intention of publishing them in book form when the task is completed.

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FLOWERS AND THEIR GUESTS.—One of the most fascinating branches of botany is the study of the relations between insects and flowers. Commencing with October 26th, *The Country Gentleman* issued a series of very entertaining chapters on the subject,—nicely illustrated.

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BEN PERLEY POORE.—The residence of Mrs. Virginia Dodge, widow of the famous literary and genial character, B. Perley Poore, on Indian Hill, near West Newbury, Mass., is represented as one of the most ideally beautiful homes in New England.

EPHRAIM BULL, THE ORIGINATOR OF THE CONCORD GRAPE.—Dr. Robert H. Lamborn sends from New York the following newspaper clipping with the subjoining remarks with which all our readers will sympathize. Lack of marks of gratitude to our national benefactors often occurs from the fact that no one steps forward to lead. If any one had suggested a testimonial to Mr. Bull, and had organized a movement, hundreds would have gratefully responded. Horticultural and pomological societies, might well take up such matters:

Ephraim Bull, the originator of the Concord grape is dying at his home in Concord, Mass., from injuries received last autumn by a fall from a ladder. Though eighty-seven years old, he was active until this injury overtook him. He is poor, having lost all his fortune in trying to introduce a new grape that he originated several years ago, and his friends are caring for him. He may soon be removed to a Home for the Aged in Concord.

"Here is a man who has done more for the world than many a well known American inventor, dying in obscurity and in poverty. His services as originator of the Concord grape can best be appreciated by imagining the commonwealth without this exquisite fruit. It is safe to say that we should be poorer to the extent of many scores of thousands of dollars annually. What Bull did for the country is as certainly worthy of due reward as is the work of McCormick or Colt or Singer. He found a common native species of grape such as any farmer would deem valueless and leave for the birds in his hedge rows; he spent years in modifying it by the most pains-taking selection and finally gave us a delicious, cheap and most healthful food, which will be supplying life and pleasure to millions of persons, for ages after this generation has vanished. My recollection of Bull is a very pleasant one. I visited Concord to hear Julia Ward Howe lecture on Kant at the Summer School of Philosophy, making my home at the old Hawthorne mansion. Wandering in the immediate neighborhood one Sunday afternoon I passed Mr. Bull's house and fortunately found him in his yard. As I always talk with a gardener when I have an opportunity I asked him about his flowers, and by chance discovered that we were standing near the original Concord vine. He told me that when he came to this place he found the vine growing in the rich soil near a drain from the kitchen. It had been, he believed, brought from the forest or wild tangle of a neighboring roadside and planted there by his predecessor. He soon noted the excellence of the berry, the large size and compactness of the bunches and the vigor of the vine. He chose the finest fruit for seedlings, and by careful selection made among hundreds of plants in each generation for a number of years he at length secured the admirable variety which enables us to point to a native grape rivalling in aroma and delicacy the famed productions of European vineyards. Society will certainly fail to secure the best services of its best men so long as it withholds from benefactors like Ephraim Bull, such a large proportion of the advantages and emoluments their patience and acumen have created."

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BURNS.—Robert Burns is usually claimed by the agriculturist as of his class. He certainly turned up daisies with his plough. But as talent is in some degree hereditary, the fact that his father was a gardener may give the lovers of horticulture some claim to a share in the elation which farmers feel at having the great poet in their ranks.

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GARDENING AND GENERAL INTELLIGENCE.—So many of our modern great men were in early life farmers, gardeners, or in some other way engaged in soil culture, or characterized by a love of flowers, that it is well to note that the same feature characterized the great men in the past. It is now said that Plautus the early Latin poet and playwright, was originally a peasant, and rose to be a grinder of wheat, before he reached poetic eminence.

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A STATUE OF VICTORY. — Mrs. Frederick Johnson notes the remarkably beautiful Statue of Victory in the Missouri Botanical Garden, —the conception of its late illustrious proprietor, Henry Shaw,—a woman with pencil and tablet, on which she has inscribed: "The victory of science over ignorance. Ignorance is the curse of God. Knowledge the wing wherewith we fly to heaven."

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SARGENT AND CANBY.—Prof. C. S. Sargent and Wm. M. Canby are botanizing in Arizona.

# GENERAL NOTES.

SENTIMENT IN FLOWERS.—Some years ago, when the first number of the "Flowers and Ferns of the United States" appeared, one of our leading critics wrote to the author, "you are doing a magnificent thing for American Botany,—but had you not better leave poetry and sentiment alone?" But the very object of the work was not so much to help botany, but to carry botany into the heart and soul of every man and woman's life. Without poetry and sentiment human life would be barren indeed. It was pleasant, however, to have the friendly criticism,—still no less pleasant to have the following on the other side recently.

"I have enjoyed very much your quotations from the poets, where applied to any species under discussion. When we consider how closely interwoven with human destiny and human life, are the flowers—when the toddling child plucks them with delight—the maiden wears them on her bosom—the bride in her hair—the banquet board not complete without them, and lastly, in the silent shadows of death they are strewn upon the grave as the purest tokens of remembrances that we have in tangible form—it is no wonder that they assert themselves in the poet's love."

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HEALTH IN GARDENING.—In a recent paragraph in MEEHANS' MONTHLY attention was called to the healthful nature of gardening as attested by statistics. Instances of extreme old age are more common among those who exercise themselves with gardening than in any other employment. One of our contemporaries has found an old farmer who is 102 years old, but who for many years past has given his time to gardening. He is still hale enough to attend to his whole patch of nearly a quarter of an acre wholly himself. Let some other occupation now bring out their old men.

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FRITILLARIA PUDICA.—Europe boasts of its snowdrop; and polite literature teems with its praise. We have spring flowers just as inspiring, but they have not yet a warm place in the heart of American poetry. When the good time comes, the modest yellow snowdrop of the Wahsatch range will show to as good an advantage as the snowdrop of the old world. MEEHANS' MONTHLY will do its part in welcoming its popularity, by a figure in the April issue.

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HONORED IN FLOWERS.—The custom of naming florists' flowers in honor of friends and distinguished people is a very pleasant one, and is especially agreeable to the parties so honored. Specimens of some new chrysanthemums, honoring one of the junior patrons of Horticulture, Thomas B. Meehan, were duly appreciated,—and next we were scarcely less pleased when "Geo. S. Conover," in honor of a well known and highly esteemed senior patron, of Geneva, N. Y., was called to our attention. The latter is a beautiful golden yellow. "Youth and old age" come in for an equal share in these honors.

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PHYTOLINE.—Phytoline is said to be a new extract from the nearly mature pokeberry, *Phytolacca decandra*. Those who have always a new "certain cure" every year for the same trouble are already giving out that it is a "sure anti-fat." Pokeberries fatten robins pretty well against their early winter flight south, and it would be remarkable if they should reduce fat in other creatures.

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CALIFORNIA MID WINTER EXHIBITION.—The mid-winter exhibition which opened on the 27th of January, and is to continue six months, proves to be a greater affair than even the most sanguine expected. Lovers of fruits and flowers especially write in glowing terms of its pleasurable instructiveness.

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MEEHANS' MONTHLY.—Some notices refer to MEEHAN'S, instead of MEEHANS' MONTHLY. The magazine has been established as the work of the three sons of Thomas Meehan, and hence the plural form appears in the title.

# FRITILLARIA PUDICA.

## UTAH YELLOW RICE ROOT.

### NATURAL ORDER, LILIACEÆ.

FRITILLARIA PUDICA, Sprengel.—Stem three to eight inches high, from a flattened disc-like bulbiferous corm, one to six-flowered; leaves linear, one and a half to four inches long, two to three lines wide, obtuse, scattered; flowers deep yellow, campanulate, often solitary, on rather long nodding peduncles, erect in fruit; sepals five to nine lines long, obovate-spatulate, sessile, the gland usually obscure; stigma entire; capsule eight to twelve lines long, oblong or subglobose, truncate above, abruptly narrowed at the base; seeds very numerous. (Watson's *Botany of the Fortieth Parallel.* See also Watson's *Revision of the Liliaceæ of the United States.*

There are no species of the true Snowdrop in this country, but if we look about for an analogue, we should most likely select this for its representative in all except the color. True, this one is referred in botanical classification to a distinct order—*Amaryllidaceæ;* while *Fritillaria* is a member of the Lily family—*Liliaceæ*, —but the differences between these orders morphologically are very slight, though found in nature to be quite constant enough to serve the purposes of the systematic botanist. In the *Amaryllidaceæ*, to which the Snowdrop—*Galanthus nivalis*—belongs, the lower portion of the perianth, or flower cup, which comprises what in other flowers we should call sepals and petals, is united with the ovarium, or that portion of the flower which becomes finally the seed vessel. This makes the ovarium, in botanical language, inferior. In the *Liliaceæ*, the perianth and stamens are free, or separable from the ovary, rising from its base, as we see in Fig. 4. On account of these differences, the orders are somewhat widely separated in systematic botany. Yet we often see tendencies in the individual genera of the two orders to approach each other. In the *Amaryllidaceæ*, we see some with the perianth not so entirely united with the ovarium as in others, while in *Liliaceæ* there are occasional cases where the base exhibits an appearance similar to an Amaryllidaceous plant. In our present species, we see in Fig. 5, how the flower stalk has thickened, so that the flower at first looks as if it might have an inferior ovarium, just as in a true Snowdrop; and if this succulence and consequent union of parts had extended a little further up, and embraced in its action the bases of the leaves of the perianth, the plant would then have belonged to the *Amarillidaceæ*. This little character seems a very important one, as showing the plant's true relationship; though it seems to have been overlooked by other artists and describers. In a colored plate in the *Garden*, of 1878, it is wholly overlooked, as it is also in a drawing given by Torrey in the botanical report of Stansbury's expedition to Salt Lake. In Pursh's "Flora of North America," where the plant is figured with its original description, the peculiarity is fairly shown.

The specimen illustrated by Pursh was collected by Captain Lewis, on the memorable expedition across the continent inaugurated by President Thomas Jefferson, in 1803 and 1804 under Lewis and Clarke. It was found in the regions of the "Upper Missouri," where it has since been collected by Parry, Watson, Coulter and others. Pursh, describing Lewis' specimen, doubtfully refers it to *Lilium*, and names it *Lilium pudicum*, noting, however, that "this doubtful species is at first sight more related to *Fritillaria;* but the style, which is the length of the petals, with an obtuse stigma, associates it more closely to *Lilium*." Sprengel, a botanist who succeeded Pursh, regarded it as more nearly a *Fritillaria*, notwithstanding the objections of Pursh; and this is the reason we read *Fritillaria pudica*, of Sprengel, though it was first described by Pursh,—because the one who describes a plant under its true relationship, is, in botany, entitled to the credit of the name. Rafinesque believed the undivided stigma entitled it to generic distinction—distinct both from *Lilium* and *Fritillaria*—and named it *Amblirion*,—and this view was adopted by Dr. Torrey in Stansbury's report of 1852, where it is figured as *Amblirion pudicum*,—but Watson and other modern bot-

anists have returned to Sprengel's view, finding the mere union or subdivision of the apex of the pistil no very important character.

The origin of the name *Fritillaria* is lost in history. We find it in use by Lobel, Clusius, and other authors of several hundred years ago. Many modern botanists say "from *fritillus*, Latin for chess-board,—because some of the species have flowers barred like the squares of a chess board." But *fritillus* does not seem to have ever been used for chess-board, but is the Latin name for "dice-box," and hence Dr. Gray, in his "School Botany," with more reason says "*fritillus*, dice-box, from the shape of the flowers." Still one cannot but remember that though the shape of the flowers of the European *Fritillaria Meleagris*—the one known to the ancients—may be like a "dice-box," it is no more like one than hundreds of others, and there seems therefore no reason for the special designation in this case. It is most probable that the name, like so many other European ones, arose among the fables of the ancients. Ovid relates of one, Meleag, a son of Althæa, that he was a wonderful hero, who alone, of a large troop, attacked and destroyed a huge boar, which Diana in her anger had let loose to devastate the country ruled by Meleag's father. He is described as a chivalric and good-hearted fellow, and on one occasion defended Atlanta against several powerful men who had attacked with the design of robbing her. On one occasion he fell in with Fritillus, who had been driven from home by his hard-hearted mother-in-law, and, to do him kindness, made him superintendent of a flock of guinea-fowls. He entered into the care of these then precious birds with singular devotion. On one occasion a mighty tempest dispersed the birds. Determined to gather them together he wandered several days, till overcome by fatigue he sickened and died. The gods who, as the fables tell us, made the flowers in those days out of those human beings whom they loved, were so pleased with the devotion shown by this servant to the interests of his master that they turned his dead body into a flower, *Fritillaria Meleagris*, whose petals to this day resemble the feathers of the Meleagris —the birds he had in charge.

In Utah, from whence by the favor of Mr. John Reading of Salt Lake City our specimens were obtained, it is known as the Rice-root, to which, as there is another species with dark flowers in Utah, we have added the name golden. It seems preferable in applying common names to take those which have sprung from the people, especially when they have a special significance, than to make new ones. Mr. Robinson, in the *Garden*, when illustrating this plant proposes the common name of "Golden Fritillary," but independently of the prior claims of "Rice-root," given by the people of Utah, there is already a golden Fritillary in the old world, which has made a deep impression in European history. This is the *Fritillaria Persica*,—sometimes called the "Golden Lily of Persia." Among the many pretty references the one by Moore in the "Fire-worshippers" may be the best remembered. The poet tells of the hatred of the Gheber to Hafez, but who is beloved by the chief's daughter Hinda, who was happy enough before the young infidel came into these parts and stole her heart away.

> "Once, Emir! thy unheeding child,
> Mid all this havoc, bloom'd and smil'd,
> Tranquil as on some battle plain
> The Persian lily shines and towers,
> Before the combat's reddening stain
> Has fallen upon her golden flowers."

According to the different authors who have spoken of it, our species is confined to districts, not exactly sub-alpine, but of elevations of about 6,000 to 7,000 feet. In the Yellowstone region in Wyoming Dr. Parry notes it as forming some of the vegetation of hillsides under the fir forests, *Picea grandis*, and where it is among the earliest to flower after the winter snows have gone. Its range, according to Mr. Sereno Watson, is "Northern Sierra Nevada to British Columbia, and east to Utah and Montana." It is likely as it becomes better known some variations will be discovered.

The old root decays after the new growth of the season has been made, and new bulbs come from the upper surface of its remains. In all that we examined, three larger ones than the others appear round the base of the flower stalk, but in Torrey's drawing these are replaced by numerous small ones, though the lower series is just like Torrey figures it.

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EXPLANATIONS OF THE PLATE.—1. Utah specimens, full size. 2. Bulbs forming for next year on the remains of the old. 3. The same, full face view. 4. Flower with the petals and sepals (perianth) removed. 5. Thickened portion of the flower stalk at the base of the flower.

# WILD FLOWERS AND NATURE.

## A SOUTHERN SPRING.

Here the air is sweet,
Fresh from the roses newly blooming;
Here the waters meet,
Down the grassy valley flowing;
Here the bands of ivy twine,
Here the bells in yellow shine,
On the flowering gelsemine,
Round the oven trellis growing.—PERCIVAL.

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THE LIBOCEDRUS MISTLETOE.—The Mistletoe of the Old World has the parts of the flower divided in fours, while the American Mistletoes have them usually in threes. On this account and some other minor points botanists have divided them, and the Old World form is *Viscum*, and those of the New World are referred to *Phoradendron*.

It is a remarkable illustration of the sense of fitness in nature, that Mistletoes which grow on leafy trees have leaves as well as the trees on which they grow as parasites, while those which grow on trees which have leaves and stems connate, so that there is scarcely any leaves properly so-called, have Mistletoes for parasites which have no proper leaves either.

The *Phoradendron Libocedri* of Engelmann is one of this character. It has no proper leaves, but instead of the hard woody stems of the leafy Mistletoes, has soft succulent twigs of a bright living green, just as capable of transforming the crude sap of the *Libocedrus*, into nutrition for itself, as if it had full green leaves. The white berries show off like pearls along the shining green stems, and have a much more striking effect than any Mistletoe which "hung in the old Castle Hall" during the jolliest Christmas in the Old World.

The specimen illustrated was kindly sent by our good friend and correspondent, Mrs. Ross Lewers of Reno County, Nevada. It is supposed to be confined to California, but Reno is not far from the county line. Clarence King's exploring expedition must have taken in this part of our territory, but this Mistletoe seems to have escaped the notice of Watson, the lynx-eyed botanist of the expedition. It is to be presumed that it is rare in Nevada.

LIBOCEDRUS MISTLETOE.
(Reduced one-half.)

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VARIATION IN THE YELLOW RICE ROOT.—In Pursh's illustration the petals are broader and rounder than in our illustration. In Stansbury's report, though the petals are more like ours, the stems are remarkably leafy, while in the *Garden* illustration the flower stalks are absolutely leafless, rising direct from the ground, as in the common snowdrop. In like manner there seems to be a difference in the form of the roots.

THE SIERRA SNOW PLANT (*Sarcodes sanguinea.*—The *Sarcodes sanguinea*, is the most beautiful of all the flowering plants with which I am acquainted. It inhabits the upper Sierras, at an altitude of from 5000 to 7000 feet above sea level. It attains a height of from four inches to two feet; in its flowering season, it throws up a shaft from which innumerable flowers spring forth, on all sides; the flower as well as the shaft itself, is a deep, glistening, fiery red,—so intensely colored as to have the appearance of sparkling in the light. To appreciate the beauty of this marvelous flower, it should be seen in its native haunts.

I can well remember my first acquaintance with it. We were traveling in the upper Sierras, and came to a beautiful Alpine meadow, from which sprang a heavy growth of black firs. In the aisles of the woods, the snow plant flourished in luxuriant abundance, and looked like crimson streaks of fire, as they rose alternately here and there, through the dark aisles of the wood.

Appreciative travelers have marked blooming specimens of this plant, and removed the bulb after it stopped blooming, hoping to domesticate this marvelous plant, but they invariably failed to make the plant grow, after the best of care and attention.

I have been studying the snow plant for quite a while, wishing to thoroughly understand its nature, and why it failed to grow, after being removed. The conclusions that I have arrived at, at present, are these: A snow plant after once blooming, will never bloom again; it exhausts its vitality in perfecting the one bloom, and immediately dies.

Persons anxious to secure specimens of this plant, of course always choose blooming specimens, and hence never succeed in making them grow.

Young plants do most of their growing under ground, preparatory for the coming seasons bloom, and therefore they will be difficult to get hold of; but at high elevations, where the timber is dwarfed by the cold, and on the granite wastes of the Sierras, where the snow plant flourishes in great abundance, the bulbs of all sizes could be dug up, and a certain per cent. would prove to be bulbs that have never blossomed, and these would be the ones that would grow, and give satisfactory results. A man reports that in grading a road near Silver Lake, California, that hundreds of the bulbs of the snow plants were unearthed, being about eight inches under the surface of the ground. A stage driver here once discovered a blue colored one.

The snow plant has already been domesticated, the flowers being shipped to San Francisco florists, where they commanded a high price. This plant is also a splendid edible vegetable, somewhat resembling the cauliflower. I am of the opinion that this plant will flourish in a great diversity of soil and climate after its culture is once understood. Still, there are many things yet to be learned concerning this strange plant.

S. L. WATKINS, Grizzly Flats,
Eldorado Co., California.

The above note from Mr. S. L. Watkins, adds considerably to our knowledge of this wonderful plant. How the coral-like masses (bulbs) get their first start in life is yet a secret of nature. They are certainly not parasites in the ordinary sense of the term, and we have probably to call in a recently discovered condition of things, symbiosis, to account for it. In this way some fungus that has to live on the plant, first prepares the food on which the plant has to live! The plant, then, does not need roots of its own.

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JUNIPER BERRIES.—It is a well known fact that juniper flowers do not perfect their seeds for two years,—consequently there are blue and green berries on the plants at the same time; but Mr. Jack, in the *Botanical Gazette*, believes that it takes three years for the berries to perfect. The red cedar, which is another kind of juniper, however, perfects seeds the same year. It is remarkable that so much diversity should exist among plants so closely allied.

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THE AGE OF TULIP TREES.—It is very difficult to get the age of the large trees in our country, as few have been purposely planted, while no one knows how long the wild specimens have been growing. In England there is a specimen of the tulip tree known to have been planted two hundred years ago on Lord Homes' estate in Berwickshire. At two feet from the ground it measures twenty-three feet in circumference.

CURVED TREES.—Some years ago, at a meeting in Philadelphia of the American Association for the Advancement of Science, Professor Bessey spoke of a perfectly straight Balsam fir of many feet in height which had blown partially over, and which trunk afterwards became curved. No one had ever thought before that an old trunk could curve in that way. But the writer of this has since seen many instances which seem to prove that they can.

CURVED TREES.

With this paragraph is a scene on the Wissahickon near Philadelphia, in which is a Red Cedar which must have curved in this way. Authenticated examples would be valuable.

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TRILLIUM GRANDIFLORUM.—Dr. Thomas Roberts, of Minneapolis, Minn., referring to the given geological range of *Trillium grandiflorum* limited to Wisconsin westwardly, states that he has found it quite abundantly in some places in Eastern Minnesota, especially in Crow-wing and Hennepin counties.

BATH-NUT.—Mr. Willard N. Clute, Binghamton, New York, notes in relation to this peculiar common name:

"Perhaps the name of "Bath-nut," referred to in the February *Monthly*, may have been applied to *Trillium erythrocarpum* in this way. "Birth-root" was long ago applied to *T. erectum* from its supposed medicinal qualities, but the word is now often used for any of the genus, though in its usually corrupt form of "Bath-root" or "Beth-root" it is generally restricted to *T. erectum*. Wood calls this plant "Bath-*flower*." Of all our common trilliums, the fruit of *T. erythrocarpum* is most noticable, being nearly an inch in diameter and colored a deep brilliant red. It is no great stretch of the popular imagination to call this fruit a nut, and if one plant is a "Bath-flower" why not call the other the "Bath-nut?" In northern Pennsylvania, *T. erectum* is also called "bloody-noses" or "nose-bleed"—evidently from the color of the flower."

DISAPPEARANCE OF WILD FLOWERS.—Miss Bessie B. Winslow, of New Bedford, notes that with the extension of towns and other improvements rare plants disappear. Even the Adder's Tongue, a yellow dog's tooth violet *Erythronium luteum*, and the pink Oxalis, have vanished near that city in localities where they were once abundant. It is an interesting topic. Nature herself as well as man, often operates in a destructive manuer. Death as well as life is in her hands. Near Philadelphia there is a strip of land, several miles in length, stretching from Bristol, on the Delaware, to near Norristown, on the Schuylkill, on which the vegetation was of that class that characterizes New Jersey. Forty years ago the writer could gather *Drosera rotundifolia*, *Amianthum muscætoxicum*, *Aletris farinosa*, *Pogonia pendula*, *Bartonia squarrosa*, *Comandra umbellata*, and possibly a couple of scores of others, including the common cranberry. These have not disappeared through anything man has done. Ages ago the Delaware had a course along much of the tract now traversed by the Schuylkill. The land in question has since been cut off from New Jersey by the new course of the Delaware. Other plants were more favored. In the struggle for life those better fitted to the new conditions are crowding out the "Jersey men." It was pitiful to note the struggle of the *Drosera* at that time scarcely an inch high, and on a dry but shaded bank, where ages ago a swamp must have been.

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VARIATIONS IN THE TRAILING ARBUTUS.—The surprising variations in *Epigæa repens*, add much to the interest which this lovely Spring flower inspires. Though there are rudimentary organs of both sexes in each flower, the separate plants are usually dicœcious, and hence fruit is rarely seen. Miss Fanny E. Langdon, in a history of the plant, kindly gives credit to Mr. Thomas Meehan, for being the first to note, in a paper issued in 1868, this practical dicœcism. Mr. Meehan found, subsequently, that Dr. Lindley, had made a note of this in the "Botanical Register," many years before! The descriptions of the variations, however, and the deductions thereon, still stand as an original contribution to the science of evolution. That work brought the commencement of a life-long correspondence with Mr. Darwin. In the letter he stated that it was the highest compliment his great work "The Origin of Species" had yet received,—the observations having, as stated, been suggested by its study.

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LOBED LEAVES.—Grant Allen, a writer of pretty chapters on speculative botany, contends that leaves become dissected in their efforts to obtain air and light. Those who have had an opportunity of examining our White Oak, know that the leaves are lobed just in proportion to the ease by which they can get light. In other cases the rule is reversed. The outer leaves are chiefly lobed, and to our mind this is the rule that generally prevails. Some other circumstances than light must have to do with the lobing of leaves. The well known English Ivy has its leaves lobed, while it is running rapidly up trees, walls, or fences. When it ceases to grow in this direction, but sends out lateral branches, the lobes disappear. Light can have nothing to do with this result.

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BRANCHING OF OAKS.—Referring to a paragraph in the February number of MEEHANS' MONTHLY, in which it is observed that the American oak, *Quercus alba*, has a similar characteristic of the English oak in having side branches, which occasionally assume the dimensions of huge trunks, Mr. Howard Worcester Gilbert notes that in the Quaker Graveyard at Salem, N. J., there is a white oak, which would rival any American and almost any oak in the English parks. The spread of branches was over fifty paces,—some of these side branches rival the trunk in strength. There is a tradition that the tree was mutilated by soldiers during the Revolutionary War, and that the tree as it now appears has grown from a sprout which shot up at that time.

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VARIATION IN THE NUMERICAL ORDER IN TRILLIUM.—Prof. W. W. Bailey remarks:

"Your *Trillium* plate is the best yet. In the account thereof, speaking of the four leaves of *Paris*, you instance, as a case of tetramery, an *occasional* flower of *Asparagus*. Let me ask, would not *Maianthemum* (Smilacina) *bifolia* be a better illustration? There the parts are always in fours."

# GENERAL GARDENING.

## THE GARDEN OF PROSERPINA.

"Next thereunto did grow a goodly tree,
With branches broad dispread and body great,
Clothed with leaves, that none the wood might see,
And laden all with fruit, as thick as thick might be.

"The fruit were golden apples glistening bright,
That goodly was their glory to behold;
On earth no better grew, nor living wight
E'er better saw, but they from hence were sold." —"SPENSER."

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FRUITING OF THE LILY OF THE VALLEY.—Mrs. Cornelia Boecklin, of Burlington, Iowa, remarks:

"An item on page 180, December number of MEEHANS' MONTHLY, "Fruiting of the Lily of the Valley," astonished me, as I have quantities of them to fruit every year. This past fall my bed of Lilies of the Valley was uncommonly full of the large red berries. Friends of mine carried away from that bed dozens of bunches of those pretty red berries."

It is beginning to be better understood than it was formerly that what is technically known as dimorphism in flowers,—that is to say the liability to have stamens imperfect in some flowers or the pistils imperfect in others on different plants is common and not exceptional. This is evidently true of the Lily of the Valley. If plants in one locality have been propagated for years from a plant with defective stamens or pistils there can be no berries. If the original stalk have both organs perfect in the same flowers berries will result.

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THE SUNKEN GARDEN IN FAIRMOUNT PARK.—One of the most beautiful features in Fairmount Park during the Summer time is the Sunken Garden. The famous Horticultural Hall, which was left over since the Centennial Exposition, is regarded as one of the finest structures in the United States. The ground, however, on which it was erected, being somewhat level, did not show off the building to its best advantage. The designer, therefore, lighted on the happy idea of making the Sunken Garden, extending it for a long distance, which thus afforded the opportunity of adding to the apparent elevation of the building, and at the same time furnishing a tract for flower-gardening under the massing system, known as carpet bedding, which was at that time so popular. One of the weaknesses of this carpet bedding system was that from the point of view of the observer looking at an angle, the best effects could not be obtained as when looked down on. The arrangement here gives this advantage. This system of bedding has in a measure given away to the continual desire for change, which permeates humanity. It is still a great favorite here, and in this case, simply because of the opportunity for looking down upon it, referred to. The avenues on either side are lined with European planes.

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MANNA.—Few know that Manna is a species of gum which exudes from the Ash. The true Manna Ash is the *Fraxinus Ornus;* it is a beautiful tree and has much handsomer flowers than any other Ash. The *Pharmaceutical Journal* says that in some parts of Sicily trees are planted expressly for these substances which they yield, just as in some parts of our country the Sugar Maple is planted for its sugar. The Ash trees are tapped when about ten years old. A transverse cut is made about one-third of the circumference of the tree,—a number of these transverse cuts being made one above the other,—as many as forty-five cuts are frequently made in one large trunk. In some countries where Manna is collected it is done by inserting tubes, just as in the case of collecting the Maple Sugar, but where these cuts are made the gum runs down the trunk and hardens. The following season cuts are made just above those of the previous year. After this has been three years in progress, the stems are cut down and the new crop of shoots left to get matured. Sometimes, however, the stems are left standing four years before being finally cut away.

PEACH YELLOWS.—California, notwithstanding its prohibitive legislation, does not seem satisfied that it knows much about this disease, for it has appointed a Commission to inquire further into it. The *Florida Farmer and Fruit Grower*, noting what the senior conductor of MEEHANS' MONTHLY says about it, states positively, that, "Mr. Meehan contends that it will not thrive this far south." This opinion is of course, simply by inference. What Mr. Meehan did say is, that from the same nurseries from which peach trees have been sent south for a hundred years, peaches sent to Michigan and other States would very soon exhibit the disease. Considering that the plants all come from the same nurseries, from the same stock, and undergo the same treatment,—sent to two different localities, and the one getting the disease badly, the other being always entirely free from it, indicates the great probability, that the circumstances were unfavorable to its development. For this reason, Mr. M. believes that it is extremely unlikely that the yellows will ever be seen either in California or Florida. Aside from this, he has found by absolute experiment that the mycelium of *Agaricus melleus* applied to the roots of peach trees, as with other trees, will infallibly produce the disease; and that the inference is, that this fungus is the cause of the disease, and is unable to develop in some countries, on account of climatic conditions. It is to be remarked, that he does not state the disease will not thrive, but simply that, after what might be called the experience of a hundred years, it has not appeared, although all the other circumstances were favorable to its development.

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WILLIAM ALLAN RICHARDSON ROSE.—It was recently noted in MEEHANS' MONTHLY that this rose, named in honor of a distinguished amateur of Louisville, Kentucky, was very popular in the old world as a climbing rose. Miss Laura Bennett, of Camilla, Georgia, says of it in our country:

"After testing it eight or ten years I would say that the William Allan Richardson combines as many good points as any other rose of my acquaintance. In the South it is perfectly hardy, growing more after the manner of the Gold of Ophir and Zelia Pradel, not so rapidly or vigorously as the Cloth of Gold, Solfaterre, Climbing Devoniensis, Lamarque, Reine Marie Henriette, and some other climbers. It blooms as early and late as any other ever-bloomer.

There is not a month in the year in which I have not seen it in full flower one year or another. Its unusual color adds much to its popularity. In unfavorable weather it has a faded appearance. In common parlance it is "Bill Dick" for short."

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HEADING BACK LARGE TREES.—A Philadelphia correspondent, A. R. McIlvaine, has been told by a "tree pruner" that it will not hurt trees any more to head them back than it would hurt him to have his hair cut. Strange how a smart saying will often have some effect! The fact is that the heading back of large trees is the first step to rapid decay. If large trees have grown too tall to be of the service originally intended, it will save time to cut them out altogether and plant new ones than to trifle with them by heading them back. A lady who has travelled considerable suggests that this heading back of large trees is peculiarly a Philadelphia practice. If this be so it must come from the fact that people ignorantly plant the Silver Maple as a shade tree, simply because it happens to grow fast when young. Its peculiar habit of growth soon deprives it of the utility expected from a shade tree,—it is this failure to supply the original want which suggests the heading-back process.

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AZALEA CALENDULACEA.—Mrs. Fisher notes that the grand, flame-colored Azalea, of North Carolina, does not seem to be common in cultivation. She notes that it is always found in the woods, or, at least, in partial shade. Its flaming blossoms make a most brilliant and striking spectacle in the mountains, the whole region is a paradise for people who love the silvan haunts of nature at the season when this azalea is in flower. In our own grounds, a few specimens planted in rather gravelly soil, thrive very well, indeed, flowering every year in a blaze of beauty. Where it does not do well in gardens, it is probably from the soil being too heavy; the fibrous, hair-like roots like to grow in among gravel and sand where they can get air as well as other food. If these conditions are complied with, it possibly would do as well in the open as in the shade of woods.

GREENHOUSES OF DR. C. G. WELD, BROOKLINE, MASS.—Dr. C. G. Weld, of Brookline, Mass., is a devoted amateur lover of plant growing, and has two extensive ranges of glass, 37 feet long and 20 feet wide, in which many rare plants, especially orchids, are grown. In addition to this, he has a number of other houses, devoted especially to separate plants. One of these is filled with tea roses, grown on benches, similar to the method adopted by florists, and the more popular roses which they grow, namely, Catherine Mermet. The Bride, Papa Gontier, and Waban are the favorites. There is another house devoted to carnations and cyclamens; while still another house is devoted entirely to the cultivation of cinerarias. Houses especially devoted to this latter plant, are by no means common; but it is said that the beautiful effects produced in early Spring by the numerous varieties of this beautiful flower more than repay the little expense of giving them a house entirely to themselves. Another house is devoted entirely to cool greenhouse plants, in which Australian and Cape flowers, like azaleas, acacias, and ericas, and with many other choice, hard-wooded plants, form the chief attractions. This beautiful range was designed and constructed by the well-known firm of Lord & Burnham. The material is of glass and iron; and, notwithstanding some doubts in the past as to the success of such material in cool climates, where the contraction and expansion by differences of temperature are supposed to interfere with success, these houses have proved everything that could possibly be desired. Among the interesting features in this little village of glass, is an octagon conservatory. The Committee of the Massachusetts Horticultural Society, who examined these grounds the last season, found in this house a specimen of *Cypripedium insigne*, which had no less than 64 heads of bloom on it. An establishment of this extent, of course, requires the care of an experienced gardener, and Dr. Weld is considered especially fortunate in having in this capacity Mr. Finlayson, who is regarded as one of the best practical men in the state. In the culture of cinerarias and cyclamens he especially excels.

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NEW MEXICO.—A correspondent from Santa Fé, is enthusiastic over the future prospects of New Mexico. The senior conductor has taken this part of the world in among his wanderings, and does not wonder at his friend's enthusiasm. Santa Fé, the capital, was founded in 1605, but it is no fault of nature that it is not as prosperous as Denver or Salt Lake City. The temperature does not vary much, and has an annual mean of about 47° or 48°. As in all countries where one has absolute control of water—to give or withhold as the cultivator pleases—it is a paradise of fruit culture. Bituminous and anthracite coal abound.

SALMON BERRY.—SEE PAGE 60.

CHANGE OF HABITS IN ANIMALS.—It has been suggested in some scientific quarters that the necessities of various creatures to employ different means to exercise their functions may have an important influence eventually in modifying the structure of the creature itself, and thus induce variation leading to new species in time. In the Old World the English sparrow builds in holes in old ruins, in wheat or hay stacks, or anywhere but in trees. When introduced to America, where no such opportunities are afforded, it makes its nests in trees. Not having been accustomed to building in such places, the nests are of the rudest possible character, and compare, as would the pottery of the ancient American Indian with the beautiful ware of our Trenton potteries, with the artistic nests of other birds. No doubt with experience these nests will improve in character, and possibly the birds themselves will vary from the foreign type when that time comes. A number of creatures show wonderful powers of adaptation to suit circumstances. Thus in Boston Harbor, the sea urchin, during the process of spawning, has a habit of covering itself with seaweed, which is packed down tightly above it as if to avoid observation. In Tampa Bay, Prof. Wilcox has observed that the sea urchins, having the same desire to avoid observation at that time, are also covered —but not with seaweed. Empty shells abound on that coast, and this creature uses the shells for this purpose. Habits, once acquired, become in a measure hereditary—changing only when dire necessity compels ; and with the forced change of habit some modification of structural character is not impossible.

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THE YELLOW CALLA LILY.—The White Calla Lily of our gardens is well known, it still retaining the original name of *Calla*, although botanists have in modern times removed it to another genus, which is called *Richardia*. Calla will, however, long be its common name. It has been frequently hinted that there are species with other colors, which would soon come into cultivation; but, so far, these have been mere rumors. It is now definitely known that there is a bright yellow species, which has been named by botanists, *Calla Elliottiana*. The one in cultivation, known as *Richardia maculata*, has a slightly yellowish tint, sometimes. The new one is said to be a clear yellow, and has leaves spotted with white, similar to our common *maculata*. Only one original plant was introduced, and it is said there are only a few propagated from it in cultivation. Ten plants were recently sold at auction in London, and bought by enterprising florists for $2,000, which is considered the largest figures ever obtained for auction plants. Another yellow one has been introduced under the name of *Calla Pentlandi*, which is said to differ in having larger foliage, and richer colored spathes; but which has not yet been offered to the trade.

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DESTRUCTION BY FIELD MICE.—It is said that in some parts of the eastern counties of Scotland, field mice have increased in such great proportions, that scarcely a blade of grass is left undevoured over hundreds of acres, and that the farmers are holding public meetings to implore the government to do something to aid in the extermination of the mice. All hands are said to be set to work hunting and killing the mice one by one. We think our American cultivators would make short work of the trouble by burying turnips, potatoes, or other vegetables, well impregnated with Paris green, in their runs. They attribute their misfortune to the great destruction of owls, which heretofore are said to have fed chiefly on field mice.

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FRUIT OF THE DWARF ALMOND. — The paragraph in a recent number of MEEHANS' MONTHLY, stating that the Dwarf Almond, *Amygdalus nana*, was never known to fruit, was barely published, before the London *Gardener's Chronicle* figured it, the first time it was ever known to fruit, or as it says, "it fruits so rarely." The husk is very downy, oval, and a little over an inch in length, and the nut, or "almond" about the size of a small plum stone.

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FILEREE.—A correspondent suggests that the Californians are in fault in the spelling of this word with two l's. Being of Spanish derivation it should be "Fileree." Another correspondent asks what species of the Geranium family it refers to. There are two under this Spanish Mexican name. The most common and most useful is *Erodium cicutarium*. It is a very useful forage plant, and one of the foreign weeds California is thankful for.

THE BERMUDA LILY.—Although not generally recognized in botanical and horticultural works, it is simply a fact that nature does not always place plants in the localities best suited to their development. Swamp trees, for instance, trees which grow partly in water, grow a great deal better, more vigorously, and every way apparently more happily, when they can find themselves in dry ground; for specimens of maples, willows, sweet gums, and other supposed swamp trees are always found in comparatively dry ground. What is known as the Bermuda Lily is another case in point. This is a native of Japan, really *Lilium longiflorum;* but nowhere does it grow in such luxuriance as in the island of Bermuda, where it was accidentally introduced, or escaped from cultivation a great many years ago. So great is its luxuriance, that it has been recognized as a distinct variety from the Japan plant, and is known in cultivation as *Lilium Harrisii*, having been first made known to cultivators about ten years ago, by Mr. Harris, an enterprising florist in the vicinity of Philadelphia. Many other illustrations might be given to show that nature does not always arrange that plants should naturally be found in places the best suited to their growth.

AMERICAN ASH TREES.—All who have had to do with the various species of Ash which have been described as native to our country, must have been struck with the great amount of variation. The conductors of this magazine have often been utterly unable to tell, for instance, whether they have the white, red, or green ashes, as they all run so closely together, and a dividing line has been found utterly impossible. By a note in the *Garden and Forest*, a Belgium correspondent states that after a careful study of American species he has been compelled to reduce them to about four species, *Fraxinus Americana*, the white Ash, and what he calls *Fraxinus nigra*, the black Ash, *Fraxinus quadrangulata*, the blue Ash, and the small western one, *Fraxinus anomala*, with one comparatively unknown, which he calls *Fraxinus Schiedeana*, is all that he recognizes; all the rest he relegates to the position of sub-varieties. Though this arrangement will probably not be final, it is certainly on the road to propriety. The Carolina Ash seems distinct enough.

## FRUITS AND VEGETABLES.

GRASSES FOR LAWNS.—Dr. Beal bought a large number of various "Lawn Grass Mixtures," and found that the following grasses and weeds comprised them,—some kinds in one, and some in others:—

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|---|---|
| June grass, | Bent grass, |
| Rye grass, | Old witch grass, |
| Red top, | Crested dog's tail, |
| Sheep's fescue, | Alsike clover, |
| Sweet vernal, | White clover, |
| Timothy, | Lance plantain, |
| Orchard grass, | Ox-eyed daisy, |

Slender rush, with many other small weeds.

It will be seen, by this, how limited we are to really good lawn grasses, as, of the whole list, June grass *Poa pratensis*, Sheep's fescue, *Festuca ovina*, with, in some special cases, Red Top *Agrostis vulgaris*, are the main stay of most good lawns.

WASHING THE TRUNKS OF TREES.—No one who has had successful experience in orchard management, but fully understands the value of washing the trunks of the trees in Winter time. Lime wash colored to prevent the white glare has been found particularly valuable. Such care always results in healthy trees, though few have cared to inquire why? It is now known that many of the diseases of fruit trees come from the germs of minute funguses, which float on the bark and germinate when the proper temperature arrives. The washes kill the germs. The *California Fruit Grower* recommends the following as an excellent wash for winter work:

Unslacked lime, 40 pounds; sulphur, 20 pounds; stock salt, 15 pounds; water to make 100 gallons.

*Directions.* — Place 10 pounds of lime and 20 of sulphur in a boiler with 20 gallons of water, and boil over a brisk fire for not less than one hour and a half, or until the sulphur is thoroughly dissolved. When this takes place the mixture will be of an amber color. Next place in a cask 30 pounds of unslacked lime, pouring over it enough hot water to thoroughly slack it; and while it is boiling add the 15 pounds of salt. When this is dissolved add to the lime and sulphur in the boiler and cook for half an hour longer, when the necessary water to make 100 gallons should be added.

SALMON BERRY.—The writer did not know until the receipt of the following note from Mr. Luther Burbank, of Santa Rosa, that the Californian Salmon Berry of that section and the Salmon Berry of the far northern portion of the Pacific were from plants recognized as distinct species. *Rubus nutkanus* is the Salmon Berry of Alaska,—it dies down annually as the common raspberry does, and when cultivated in Philadelphia, dies down under a comparatively light frost. In other respects it can be easily cultivated.

The description of the fruit, its size, variation, etc., correspond exactly to those described in the note,—and the difference in lobing of the leaves, and the more or less woody character of the one over the other would indicate that local conditions have had much to do in the evolution of the two species. Mr. Burbank says :

"I mail you to-day a photograph one-half life size of *Rubus spectabilis* (Botany of California), the yellow or salmon-colored berry at the left, and the dark red variety lower down at the right, see page 57. These are always by everybody on this coast called "Salmon Berries" though in Botany of California *Rubus nutkanus* is so called. The leaves are nearly evergreen—the stalks perennial, making tree-like plants 12 to 20 feet high, and trunks 2 to 3 inches in diameter, with a spreading top ; so that the most common way of gathering the berries, in many places, is to take a basket and pick them while on horse back. Some friends in Mendocino Co. claim to know of bushes having trunks 10 to 12 inches in diameter. The berries are larger than any cultured raspberry,—though rather soft and insipid when compared with them. There is a marked difference in the growth, appearance, and productiveness of the plants, and in size of berries in different localities. Yet the light and dark-colored ones are always strikingly distinct (in color only), as are the berries *red* and *yellow* of an Elder (Sambucus) growing in the same places.

Many attempts have been made to cultivate the Salmon Berry, always everywhere ending in failure, but lately I have had abundant success by planting on moist sandy land. The crop is always sure and exceedingly abundant. The plants assume a rounded bush form. The berries are ripe when other raspberries are in bloom."

COPPER SOLUTIONS.— Mr. C. L. Longsdorf, of Floradale, Pa., would be glad to know what is the experience of fruit growers, with the use of copper solutions, without having lime or carbonate of ammonia mixed with it. All that can be said from experience in the MEEHANS' nurseries is, that they find lime to discolor the leaves of roses and other plants grown under glass. Trees were sprayed with sulphate of copper with the use of lime, and the general result seemed to be entirely satisfactory. The only report being that sometimes when the copper solution was too strong, the leaves of the plants that were sprayed, would be somewhat injured. Whether or not this was from the absence of lime, cannot positively be stated. The writer has had no experience with its use in this simple form in the open air, and it is this information which is desired.

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THE BISMARK APPLE.—A note from Baron von Mueller, of Melbourne, Australia, in a recent issue of MEEHANS' MONTHLY, presents to our readers the exact history of this apple, which has become so famous in Australia. A lady of Hartford, Conn., writes that the apple has been introduced into Germany, and that her friends in that country tell wonderful tales of its superior character. They say that it bears abundantly the first year after grafting, and that the fruit is remarkably large, very showy and a fine keeper. She says that there is another variety in Germany called Bismark, and that to get the true variety, it has to be ordered under the name of New Zealand Bismark.

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IMPROVEMENT IN STRAWBERRIES.—Those of us who can look back for half a century show little enthusiasm over reported improvements in strawberries. When in our country Hovey's Seedling first came to us, and we introduced the famous Myatt's Seedlings from the old world, surely they were quite as high flavored, as productive, and every way as desirable as many of the famous introductions of to-day. But they declined, and we had a sort of revival under Longworth and the Cincinnati Horticultural Society,—but good and really fine varieties became scarce. The Albany seedling did much to revive interest in new strawberries, but the strongest impulse came from the Pittsburg strawberry grounds of the Rev-

MARY STRAWBERRY

erend Jeremiah Knox, whose success with a French variety named Jucunda aroused again a marked interest in strawberry culture everywhere. But its sun also went down. The Sharpless and the Cumberland Triumph had a good run,—but though to-day they hold their own, they do not seem to be much better than those referred to of half a century ago. It does seem as if it is necessary to keep on trying for something new, if only to keep progress from going backwards. We have been interested in one introduced by J. T. Lovett & Co., which seems to bring us back again at least to where the famous Jucunda left us, and which they have named the "Mary." The illustration has been drawn by the same artist, Lunzer, who draws for our colored plates, so we feel sure there is no exaggeration.

It was raised by an amateur, Henry H. Alley. It is said to be very prolific, and, unlike many large fruited kinds, has good firm flesh desirable in a market fruit. A strawberry will always be a strawberry, and naturally nature will have some limit to strawberry size, but it would be well to take this for the maximum as yet produced, and then send word to MEEHANS' MONTHLY when a larger one is found.

# BIOGRAPHY AND LITERATURE.

## NATIVE COURAGE.

Cauld blew the bitter biting north
Upon thy early humble birth,—
Yet cheerfully thou glinted forth
Amid the storm,
Scarce reared above the parent earth
Thy tender form.

The flaunting flowers our gardens yield,
High sheltering woods and wa's maun shield!
But thou, beneath the random bield
O' clod or stane,
Adorn'st the histie stibble-field,
Unseen, alane.

—BURNS to a Daisy.

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AN OLD CEMETERY.—WILLIAM YOUNG.—Possibly the oldest cemetery on this continent, is a plot of about a quarter of an acre, now known as Leech's burial ground, in the Twenty-seventh Ward of Philadelphia. It is close to where the old building stood till recently, in which Wilson the ornithologist taught school, and also near the famous Garden of Bartram the botanist. It was, indeed, established by a co-temporary of Bartram, Wm. Young, who was a competitor with Bartram in collecting and sending American plants to Europe. It is certainly two hundred years since the first interment, and Young in his will bequeathed two and a half acres forever to his family for burial purposes, constituting his grandsons and grandaughter, the Leech's, his executors for the purpose, expressly declaring that neither they nor their successors should ever have any right to sell it. A stone over his grave states that he was "the founder of this repository of those who around him sleep in solemn silence." Another stone records the burial place of Elizabeth Young, who died November 21, 1777. Young obtained the title of "King's Botanist," with a yearly annuity, much to the discomfort of Bartram, who under date of September 23, 1764, wrote to Peter Collinson, "my neighbor Young's sudden preferment has astonished great part of our inhabitants. They are daily talking to me about him, that he has got more honor by a few miles traveling to pick up a few common plants, than I have by near thirty years' travel, with great danger and peril. It is shocking that plants you have had * * should be esteemed at court new discoveries." On the 15th of September following we find him, however, sending plants "by my neighbor Young" to Collinson. He gives an opinion to Collinson, that if Young could be "put under Dr. Hill's care he will make a botanist, as he is very industrious and hath a good share of ingenuity." He is anxious to have a box sent to the King, "not that I depend on having any such preferment as Young had," but to see whether his new plants would grow in England as well as Young's old and well-known ones. This appears, however, to have brought an annuity to John, for by a letter from Collinson, February 10, 1767, reference is made to the plants sent to "our gracious King," and that the annuity will be regularly paid. Collinson deprecates Young's expensive pleasures in the old world and despairs of his making a name as a botanist. Young, however, kept up sending plants after Bartram seems to have mostly given it up, for Dr. Fothergill, writing to Marshall in 1771, praises the manner in which Young packed his plants, and wonders whether John Bartram is still sending more, and remarks, "Young is very diligent, and has glutted the market with tulip trees and the like." He makes other points about Young, that he "indiscreetly" put his plants and seeds into the hands of an improper person, and Fothergill is "sorry for Young." Bartram died about this time, that is September 22, 1777, in his seventy-eighth year. In this same old cemetery stands the original tree of the "Kingsessing" Pear, which one time had great popularity, and is yet regarded as good, to say the least, as many that have replaced it in popular estimation. Young's house has been for many years used as a poor substitute for a public school. As no one in the world owns land absolutely, but under governmental regulations,—it is not likely this plot will stand "for ever."

ENGLISH NAMES OF THE WILD CARROT.—The misfortune of English names, or common names, to our flowers, is that the names are not permanent. Anyone who pleases can give any name he likes, no matter how many names the plant may have had before, and it is this that brings about the confusion. It is not so much that there is any objection to pretty English names for plants, but for the continual change which the free naming by every one entails. A valued exchange in noticing the recent remarks in MEEHANS' MONTHLY on the Wild Carrot suggests that "Queen Anne's Lace Flower" is probably intended; but it is more than likely that if this name had been used in the paragraph, not one reader of the magazine in a thousand would have known what was referred to. Another correspondent notes that the common Golden Bell of our gardens—*Forsythia viridissima*—is known in Arkansas as Golden Rod; but if a resident of Arkansas were to send to any eastern nursery, he would be mortified to receive in return, some such a plant as was recently figured in MEEHANS' MONTHLY. Can any one tell, with numerous English names to a single plant, how such confusion is to be avoided? Our correspondent, by the way, thinks that the name would be far more appropriate to the Golden Bell than to the ordinary Golden Rods. It might be said in regard to this that the original Golden Rod was a species known in Europe as *Solidago virgaurea*. This species has an inflorescence very much like a Golden Rod; and one having been so named all subsequent species had to follow.

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FERN CHAPTER OF THE AGASSIZ ASSOCIATION.—An interesting and exhilirating feature of botanical study is collecting plants, learning their names, and arranging them in herbariums. This practice leads to the detection of differences, and making comparisons,—faculties essential to successful botanical pursuits. Unfortunately many rest here. It is in a knowledge of the structure, behavior, and general history of plants that the real pleasure of botany begins. Books will put the student on the track, but only a loving acquaintance with the plant itself will open to us the true heart of the plant's life. The chapters of the Agassiz Association issue small pamphlets in which the members let out their love secrets to each other. A branch has been established especially for the devotees of ferns. It is called the *Linnæan Fern Bulletin*. One dollar a year, to Mrs. D. T. Dershimer, Square Top, Wyoming Co., Pa., makes one a member.

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THE BEAUTIFUL FLOWER GARDEN.—We all know that there is such a thing as Winter time and Spring time, but it puzzles the sharpest to decide when Winter ends and Spring begins. MEEHANS' MONTHLY resolves itself into a magazine of genuine information, in which "reading notices" which are usually paid-for advertisments in some shape or another, shall never appear. But it is sometimes as difficult to draw the line between what is or what is not a reading notice, and what is genuine news, as to divide between Winter and Spring. W. Atlee Burpee & Co. issue a very expensive book at nominal prices, but of course incidentally to help their business. Their instructive book, "The Beautiful Flower Garden," would be favorably noticed in ordinary reviews, as particularly valuable and instructive if a good sum were charged for it.

MEEHANS' MONTHLY has decided to give these gentlemen the benefit of the doubt. Small minded people are apt to think nursery and seeds men sell more when seeds fail. But when they spend so much money on a book like this, solely to instruct and favor success; such silly notions should surely fade away.

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AROUND THE WORLD.—As announced in MEEHANS' MONTHLY, Professor Heilprin's geographical venture which was to appear soon, has now been issued. Beautifully printed and aptly illustrated, it gives pleasure in itself aside from its instructiveness. There is much in it that will particularly interest our readers. The picture of the peak of Orizaba, which by the way, Prof. Heilprin was the first to accurately measure, shows the character of the vegetation of the foothills,—while another picture gives some forest scenery of the now famous Hawaiian Islands.

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A GREAT WORK ON POMOLOGY.—Mr. H. E. Van Deman, formerly pomologist in the United States Department of Agriculture is contemplating a great work similar to that of the late Charles Downing on Fruits and Fruit Trees of America.

# GENERAL NOTES.

THE PLANTS OF THE SIERRA NEVADA.—Mr. Geo. Hansen, of Jackson, Amador Co., Cal., has made a collection of, and dried, the plants of the Sierra Nevada, and has already made sets of some 600 species, 400 of which have been named by Prof. Greene, who finds a large number to be entirely new. There are no valley plants in the collection, all having been gathered from between 2000 and 9000 feet elevation. Prof. Hansen's original idea was, as stated last year in MEEHANS' MONTHLY, to have his plants for tourists, who usually like to take away with them mementoes of their travels,—just as travelers in Switzerland can bring away from there accurately named plants of that region. Mr. Hansen deserves the thanks of all lovers of botany for introducing this excellent practice, to aid the pleasures of tourists in California.

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THE TRILLIUM PLATE.—Whether it was because friends took the opportunity while renewing subscriptions to praise the Trillium plate may be a question. But it was universally regarded as a remarkably fine piece of artistic work. The praise is grateful. The conductors believe that nothing like the whole make-up of MEEHANS' MONTHLY has ever been given at the same price, in any part of the world,—nor is it believed that anywhere in the world would it be more cordially supported. If Americans are proud of the work, the conductors are proud of Americans.

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PRIMITIVE NAMES. — The consternation which some botanists have raised in pressing the duty of abandoning many universally accepted plant names, and adopting for general use more primitive ones, is spreading to other departments of learning. It is found that the whole English language is in the same unfortunate condition as the language of botany. It is proposed to abandon "thinks," "walks," "listens," freezes," etc., for "thinketh," "walketh," "listeneth," "freezeth," etc., as having a much prior claim to our regard.

CONDENSATION.—As the readers of MEEHANS' MONTHLY know, the magazine took a new departure in giving condensed instead of elaborate treatises. The conductors believe that what appears in one number could legitimately be spread over several. In these busy days, time is an important element in a happy life. And yet it is not so easy to save subscribers time in this way. It is an art that can only be learned by knowledge and experience.

Alphonse De Candolle, says, in one of his more recent works, "C'est dans l'art de dire beaucoup en peu de mots qu'il y a le plus de différence d'un auteur à l'autre, au point de vue de la phytographie."

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SCHOOLS OF HORTICULTURE.—In the Old World Horticulture has a broader meaning than in America, where it is often confined to fruit raising or market gardening. On the table before the writer is an engraving of the school at Soissons, France, sent by Mr. Charles Joly. It is a model of landscape gardening, while keeping in view the more utilitarian features of the gardening art. It is rare even in the Old World, to find beauty and utility so happily combined.

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JUSTICE TO AN ADVERTISER.—The publishing department desires to tender an apology to Mr. Parry, of Parry, New Jersey, for the accidental omission of his advertisement in the March issue. It must have been aggravating, as March is a grand advertising month. The department can only hope that this notice may give additional attention to the advertisement of this eminent firm in the present issue.

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AMERICAN COWSLIP.—*Dodecatheon Meadia*, the American cowslip, one of the most beautiful of our wild flowers, and which is part of the flora of our country, from California to Alaska, and from thence eastwardly to the Mississippi, will form the chief text for the wild flower article in our next issue.

# DODECATHEON MEADIA.

## AMERICAN COWSLIP.

### NATURAL ORDER, PRIMULACEÆ.

DODECATHEON MEADIA, LINNÆUS.—Leaves oval or oblong, obtuse, attenuated at the base into a marginal petiole, glabrous, entire or repaudly dentate; scape nine to twenty-flowered; bracts of the involucre ovate, inner ones lanceolate; sepals lanceolate, acute, entire; filaments united into a tube much shorter than the subulate anthers. (Wood's *Class-Book of Botany*. See also Gray's *Manual of the Botany of the Northern United States*, Gray's *Synoptical Flora of North America*, and Chapmau's *Flora of the Southern United States*.)

Our plant seems to have been first discovered by the Reverend John Banister, an English botanist, who collected in Virginia, and died there from an accident. Ray credits him with the collection in his "History of Plants," published in 1704, and Plukenet figures it in another work, published in 1705. Miller says that in 1709 he saw it in flower in the celebrated garden of Bishop Compton, near London, and after whom our *Comptonia* is named, where it was raised from Banister's seeds. At that time it was supposed to be an *Auricula*, which is one of the great divisions of the Primrose or Cowslip family,—and it is from this early association that it has derived its common name of "American Cowslip." Why this class of flowers received the common name of cowslip is lost in oblivion. Dr. Johnson, the author of a famous English dictionary, derives it "from growing much in pastures, and often meeting cows' lips." But this is absurd, the English species "meeting cows' lips" no oftener than hundreds of other plants. Moreover, the English peasantry do not call it cows' lips, but cow-slips, and this is most probably a corruption of a word having a very different meaning in the olden time. How errors occur through misapplications of words or meanings of words is well illustrated by the history of the primrose itself. A very common name for it in the old world was "Palsywort," and, it was believed to have wonderful efficacy in the cure of palsy. But it is absolutely worthless for this, or any disease; and the idea most probably originated through one of the fables in ancient mythology. Athema, an insane king, was about to kill his wife Ino. Her friend, Melicerta, coming in at the time, and supposing herself to be the object of the lunatic's attack, fell in the sea in her endeavor to escape. Paralisus, her lover, was stricken with grief by this misfortune, and died thereof. His father and mother were the God Priapus and Flora, and they turned their beloved son into the Primrose; and the whole family of Primroses, during the dark ages, were known to those who affected any learning as Paralysus. There is little doubt but the idea of curing the palsy originated solely from this ancient Latin name. Under this general name of Paralysus what we now know as Mulleins and Comfreys were associated with true primroses, and Dr. Prior searches for the true derivation of Cowslip among some of these.

The botanical name *Dodecatheon* is also a very old name of Grecian origin. Pliny, the early Roman writer, tells of it as "in its name being dignified by the protection of all the gods," *dodeka* signifying twelve, and *theos*, gods. These twelve leading divinities being Juno, Vesta, Minerva, Ceres, Diana, Venus, Mars, Mercury, Neptune, Vulcan, and Apollo,—and in another place tells us "dodecatheon is a plant with a yellow root, and leaves like a lettuce." It was used in medicine to disperse watery humors. This plant of Pliny was supposed by the herbalists to have been a plant of the Primrose family, and when Linnæus took these old groups to divide into distinct genera, he often took names already applied in the group to divide the sections, and this was probably how he came to select this for this genus, and not because the "twelve flowers on the stem represented the twelve Cæsars," as we are often told. Linnæus named the plant *Dodecatheon* in 1751, although the genus had been named *Meadia* by Mark Catesby in 1743,—not showing in this his usual justice, if we are to credit what Sir J. E. Smith says

about it. Dr. Richard Mead was a correspondent of Catesby, and, as Catesby tells us, aided him in carrying out the design of his work, and was a man far ahead of his age. He was born at Stepney, near London, in 1673, but educated on the continent, where, he studied botany under the celebrated Dr. Hermann, at Leyden. On his return to his native land, he practiced medicine, and became so eminent as to be engaged as physician to King George II. For his scientific eminence he was elected Vice-President of the Royal Society. He was among the first to endeavor to show that there was no real opposition between the teachings of scripture and the advance of science, and wrote a treatise to show that when the scriptures speak of people being possessed by evil spirits, we are to understand them as lunatics, or afflicted with epileptic fits. At that time, however, these advanced views brought him into antagonism with a large class,—and when to this he threw the weight of his name into the utility of vaccination, then being advanced by Lady Montague, and under his advice, the Royal family submitted to the operation, he fell very low in the estimation of the obstructive classes. The leading English botanists of the day urged on Linnæus that so grand a genus as that represented by the American Cowslip, ought not to bear the name of one of whom they thought so little,—and on their representation Linnæus set aside the name of Catesby, but retained as a specific one. *Dodecatheon Meadia.*

The history of its second introduction through Bartram and Collinson, is very interesting. Plukenet, already cited, described it as a cyclamen. In a letter to Alex. Catcott, May 26, 1742, Darlington's Memorials, John Bartram says, "I cannot imagine what Plukenet names a cyclamen. I believe there is not one of them in our parts. Our Americans have very little taste for these amusements (collecting plants). I can't find one that will bear the fatigue to accompany me in my peregrinations." It so happened, however, that some one told him of something like it, —and he at once took a journey on foot to find it, in which he succeeded. Dr. Darlington thinks the place was "far in the wilderness," but it might not, for it has been collected near Norristown, about twenty miles from Bartram's home, and the specimen now illustrated was gathered for this work at Duncannon, Pa., a little over a hundred miles away, by Mrs. John Wister, residing there.

In Dillwyn's *Hortus Collinsonia*, however, Collinson notes that Bartram wrote to him that he first found it in 1744, "only one plant, as he crossed the Shonondor," in the Virginia Blue Mountains. He adds that he had never found another plant in twenty years of annual excursion, nor had Mr. Clayton ever found it. It is still scarce in that particular place, though Mr. Howard Shriver has occasionally found it at Wytheville, and it is at times met with through the mountains to Tennessee. It is, however, abundant as we get further west. The prairies often exhibit them in great numbers, and the inhabitants thereabout know it as "Shooting" or "Blazing Star." It has been found through the Rocky Mountains to the Arctic regions, and along the Pacific shores to Mexico.

As the leading representative in America of the Cowslip family, it is perhaps entitled to a share in the polite literature excited by its namesake in the old world, where, according to Lord Thurlow's poem

> "—— Cowslips the green meads adorn."

These old world Cowslips droop in numbers from the top of the main stalk, and suggested to the old time religious mind, the name of St. Peter's Keys. The floral emblematists dedicated the flower to "winning grace,"—a point much more appropriate to the graceful slender curving pedicels of our species, and would certainly better suit Hurdis' lines to

> "The love-sick Cowslip that her head inclines
> To hide a bleeding heart."

Dr. Erasmus Darwin, in his curious poem, "The Loves of the plants" believed the flower drooped the better to aid in self-fertilization, and saw in the erection of the seed vessels after the flowers faded, a plan to prevent a too early seed-distribution. The single pistil in the bending flower he likened to a bashful maiden, and the five stamens to arduous suitors, and sings

> "Meadia's soft chains, five suppliant beaux confess,
> And, hand in hand, the laughing belle address;
> Alike to all, she bows with wanton air,
> Rolls her dark eye, and waves her golden hair."

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EXPLANATION OF THE PLATE.—1. Foliage and stem of a complete plant, full size, from Duncannon, Pennsylvania. 2. Vertical section of a flower enlarged.

# WILD FLOWERS AND NATURE.

## HICKORY LILIES.

Lo! where the gray of early March
  Lies frost-like on the grasses green,
And by the roadway many an arch
  Of tangled branch and vine is seen,
Weird flowers upon old winter's tomb,
  The waxen hickory lilies bloom.

Soft, sensuous petals, pale as death,
  With drooping edges half-uncurled
Unwavering in the wind's cool breath
  That drifts across the upper world,
Strange forest-buds that gleam o'erhead
  Their creamy pallor splotched with red.

The mist from out the marsh below
  Spreads filmy wings and glides away;
Burns in the east a ruddier glow
  While high above the hillside clay,
All wet with dew, the dawn's perfume,
  The waxen hickory lilies bloom.

ERNEST MCGAFFEY.

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JUVENILE AND ADULT FOLIAGE. — It is remarkable how mankind can go on through life, seeing and yet not seeing. Still more remarkable that after one has seen and shown his fellows, they will persist in going along blindly for all. Alexander Braun, a famous botanist of the past generation, in a paper on "Re-juvenescence," published in the "Ray Society's Proceedings," showed that there was no dividing line between a juvenescent leaf and an adult one as to the period one or the other age began; any more than in human beings would there be a period when a boy would get the common sense of a man. Some children would never get common sense, but remain imbeciles through life,—and it was just as true that some individual plants would never reach the normal development, but retain the juvenile forms of growth and foliage continually, be in fact imbeciles in the vegetable kingdom. Yet botanists are ignorant of or forget these facts, and individual plants, which happen to have retained juvenile characteristics, have been dignified as true species.

We give illustrations on pages 72 and 73, of a common nursery plant of Japan, named by a great botanist, Zuccarini, *Retinospora squarrosa*. A few years ago, one plant got cured of its "imbecility," and assumed the form nature intended it should do. It proves to be *Retinospora pisifera*.

It is a strange sight to leading botanists visiting the Meehan Nurseries — and yet any one examining beds of coniferæ seedlings at any time, can see that it is general with coniferæ to have "free" leaves when young, and "connate" leaves when mature; and that in these seedlings some assume the "connate" condition much earlier than others. It is only with vigorous vitality that plants of this class assume what seems to be a leafless condition.

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BORING OF FLOWERS BY BEES.—Prof. W. W. Bailey says:

"An incidental mention on page 22 on the boring of flowers by bees, reminds me of a letter of good Dr. Gray to me in 1873, when I sent him my notes upon *Gerardia pedicularia* (afterwards quoted by Darwin), — and the plants.

'Yes!' wrote the Doctor, 'I see it, but it's a clear case of burglary—kitchen window instead of front door!'

I have many such characteristic cards from him."

But it appears that the work is not by burglars after all, but by Carpenter Bees, which are duly authorized to work in this way.

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SWEET-SCENTED AZALEAS.—It is generally understood that only the Swamp white Azalea is sweet-scented. Mrs. E. L. H. Willis, of Charleston, S. C., notes that all the American species of Azaleas, when collected together in bunches, have a more or less grateful odor,—and referring to Azaleas generally she remarks that the Magnolia Gardens on the Ashley river, about thirty miles from Charleston, are visited by thousands of tourists every spring, in March and April, and enjoy possibly the many groups and masses of Azaleas in that garden more than any other sight presented to them.

ADAPTATION IN SEEDS TO FACILITATE GERMINATION. — It is now well understood that seeds have peculiar contrivances or adaptations to aid in their distribution. Mr. W.W. Romelee, of Cornell University, shows in *Science* for September 30, 1892, that seeds have also special adaptations to aid in germination as well as distribution—a point which previously had not been prominently pressed. While form in plants is often charged to adaptation, variation alone claims a share.

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NATIONAL FLOWERS.—A correspondent, signing "West Virginia," referring to the many suggestions for the adoption of a National Flower, makes a good point that the flowering dogwood and the ox-eye daisy are deserving of as much consideration as many others and are suitable for architectural designs. They could be perfectly represented in circles no larger than a dime. A good word is given for the ox-eye daisy as belonging to the chrysanthemum family. As one of these species has been taken as the national flower of Japan, there can be no reason, as our correspondent suggests, for not having these particular species to represent us. It may be repeated, however, that national flowers of any kind always represent some particular sentiment before they have been adopted, and just what led to the adoption of the chrysanthemum by the Japanese does not seem to be a matter of record. This ox-eye daisy, however, would admit of a very good sentiment. This daisy is a native of the old world, but does not fully reach the development there which it has in the United States, —it finds itself more at home and better adapted to this new country than to the one it came from. In this way it accords with the development of our population. The people of the United States came from the old world, which they found badly adapted to their progressive development. In the new world they found just the field for their enterprise and prosperity. In this way the American emigrant and the chrysanthemum have shown a like adaptation, and the flower therefore might very fitly represent American progress.

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HYBRID PLANTS.—It is very difficult to get those of limited observation to believe that pollen has no immediate effect on fruits. It is conceded that the seed itself, that is to say the cotyledons are influenced by pollen, but the cotyledon is really a part of the new plant. Indian corn is an illustration that albuminous matter, which constitutes the greater part of the seed of the corn, is really a part of the new plant, just as much as the white of an egg is a part of the new creature to be born, and we see immediate effect in corn; yet we frequently have intelligent men contending that fruit trees in an orchard will influence the different varieties by their pollen. Surely it must be known by this time, that there are orchards of scores of varieties of apples, vineyards with dozens of varieties of grapes, experimental beds of various fruits with numerous varieties, and yet the fruit of all come true to their several varietal characters. At the last meeting of the American Pomological Society, a very intelligent gentleman from Florida read a paper to show how one variety of orange was so much influenced by the pollen of another as to produce fruit of different forms and shades of color. These are the result of morphological and physiological changes, with which pollen has nothing to do. This fact is so well-known as to be scarcely worth repetition, only for the fact of the pollinizing thought gaining currency.

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LILIUM GRAYI.—Few things give more zest to a botanical tramp than watching for varieties that probably may be found. Some years ago, Dr. Asa Gray visited Roan Mountain, in North Carolina, and found a single specimen of a beautiful Lily, which was named *Lilium Grayi*. A few years later, a party, consisting of Professors Leidy, Porter, Wilcox, and Meehan, with their wives, planned a wagon journey through North Carolina. All over Roan Mountain the continual watch-word was, "Look out for *Lilium Grayi*." No one could find it. Meehan, at length, found a boy driving a cow, and using a branch of the rare lily as a driving switch! Boy said, "plenty over thar," pointing to a far-away valley we ultimately tried in vain to find. A solitary plant was at length found by Porter, trying its best to rival in beauty a mass of Catawba Rhododendrons blooming around it.

That root was for a long time a treasure in the writer's garden, till a hungry rodent—may some kind cultivator have mercy on him—made a meal of the bulb one severe winter. The

"over thar" seems to have fallen to the lot of Mr. Harlan P. Kelsey, of Linville, to work out.

He soon after found it in some abundance, and recently has given it prominence in a group of North Carolina wild flowers, which he has kindly permitted us to reproduce. It forms a prominent feature in the upper portion. It is pleasant to look at it as a reminder of one of the most delightful excursions of the writer's younger days, as well as in affording an opportunity of emphasizing one of the most exciting pleasures of a botanical trip, — the opportunities for which, no part of the United States can exceed the mountains of North Carolina.

LILIUM GRAYI.

THE RUSSIAN THISTLE.—Besides being called Russian thistle, it is just as commonly known in North Dakota as Russian Cactus,—in England its closely allied neighbor is called Saltwort or botanically *Salsola Kali*. It is a spiny, fleshy plant, usually growing along the seacoast in the old world. It appears to dry up and then blow away over the plains, of course taking its seed with it. It is estimated to have caused a loss to the farmers of a single county in North Dakota of forty per cent of the total crop, or in cash, three million dollars. As a general thing a little intelligent reflection and the proverbial "stitch in time" is a sufficient guard against the extension of any weed. There is no reason why a thoughtful person should ever suffer seriously from the Canada Thistle, which is believed to be the most serious of all pests to the agriculturist in the north-western portion of our continent; but this new intruder really appears to be so far impregnable against the best intelligence. It is remarkable that nothing serious has ever been heard of it in connection with agriculture in the old world.

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DOUBLE TRILLIUM.—Many years ago, in his correspondence with the late Prof. Asa Gray, the writer came to learn that "never" was a word which should not be used when speaking of the behavior of Nature. A good illustration of this, is in regard to a remark recently made in MEEHANS' MONTHLY, that a Double Trillium had never been recorded. Fortunately the cautious words "on record" were used instead of "never." Miss Emilie Zimmerman writes from Buffalo, that thirty years ago she found a plant with double flowers in the woods of Pine Hill, near that city. It was transplanted into her mother's garden where it continued to grow and bloom for three years, when it suddenly disappeared. Above the three comparatively small green sepals, there was a large, full head of flowers, consisting of eighteen beautiful white petals. The three subtending green leaves were as large as usual.

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HICKORY LILIES.—In this issue a pretty poem appears under this heading, the subject being the beautiful, Lily-like bud-scales of the Hickory, which after serving the purpose of bud-scales all winter make a renewed growth when spring time comes. It is a similar second growth of bud-scales, which forms the "involucre" of the common Dogwood, *Cornus florida*, and other plants, as first noted by Prof. Thomas Meehan in scientific serials some years ago.

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THE FLOWERS OF MT. ARARAT.—We had the pleasure recently of examining a beautiful collection of dried specimens made in the vicinity of this famous spot, believed to be the cradle of the human race. The great beauty of these flowers reminded one of the beauty said to have characterized the Garden of Eden. The number of bulbous rooted plants was particularly interesting. Dwarf tulips, some of crimson and others of yellow tints, were among the chief contributions to the collection. It seems remarkable that, as we reach higher altitudes, where the struggle for life is the most severe,—where there is no one to look at or admire them,—flowers seem to take on their greatest beauty. In tropical countries, where nature seems to favor vegetation more particularly, there are very few flowers of great beauty. While examining these fifty specimens from Mt. Ararat, we were handling another collection of fifty from the southern portion of Mexico; there was not one showy flower among the whole collection. If it were not for the orchids, which have in a measure a struggle for existence while attached to trees and rocks, in a measure giving them the same experience with the plants of elevated regions, there would be little beauty in a tropical forest.

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STEM BEARING YUCCAS.—It has been stated in MEEHANS' MONTHLY that rhizomes are simply stems that have become geotropic instead of ascending. Some Yuccas have stems. In these cases they have no rhizomes. They have rhizomes (as for instance *Yucca filamentosa*) when they have no stems. Some time since Mr. Ernest Walker, of New Albany, Indiana, had a *Yucca filamentosa*, which, instead of rhizomes, threw up a stem. He kept it to see how it would behave. Last spring a year ago he planted it out of doors. Unfortunately it was killed during the winter. This confirms a fact already known to horticulturists that vegetation when underground will live that would die under exposure. Death is not simply from low temperature, but from the evaporation of the juices.

# GENERAL GARDENING.

## AN EVENING IN MAY.

How calm the landscape sleeps around,
How wildly sweet the far-off sound
Of rippling waters as they pour
Their light waves on the distant shore.
The breeze comes laden with perfume
From many an orchard white with bloom,
And all the mellow air is fraught
With beauty beyond fancy's thought.

Outspread beneath me, breathing balm
Into the evening's golden calm,
Lie trellised gardens thickly sown
With nodding lilacs newly blown,
Snow-drops and jouquils, pale and prim,
And flamy tulips, burning dim
In the cool twilight, till they fold
In sleep their oriflambs of gold.

—SARAH HELEN WHITMAN.

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CEDAR OF LEBANON.—A paragraph from a Rochester paper, refers to some Cedar of Lebanons planted soon after the revolution, by Phillip Livingston, on his estates near New York City. The trees were brought directly from Palestine. The present owner of the estate is Clarence Mitchell, of New York City. In a letter to a correspondent, Mr. Mitchell states that the trees are still healthy, growing where they are sheltered from northern and easterly winds. There are fine trees in the vicinity of Philadelphia which have been producing cones for the last twenty-five years. It would be interesting if some one would raise trees from this American seed, simply from the association with the original trees early introduced and experimented with. It is probable, however, that the ease by which seeds can be obtained from any of the leading firms dealing in tree seeds, is the reason why American seed is not sought for.

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DAY LILIES.—Some of our English co-temporaries make a distinction between "Day Lilies" and "Plantain Lilies." We thought these names were applied indifferently to Funkias and Hemerocallises. If there is any distinction between Day and Plantain Lilies, it would be well to know where the line is drawn.

THE RUSSIAN VIOLET.—Mr. Ernest Walker, of New Albany, Ind., notes that this variety seems to be not at all a success as a forcing violet. He says in a house planted with Marie Louise and these violets the former have been blooming prolifically since November, last fall, but the latter began to bloom not till February 15th. They carried buds all winter, but by no art or method of coaxing could they be induced to develop.

The variety nevertheless is a valuable one. It has proved perfectly hardy here out of doors, and well adapted for growing in frames for early spring flowers. The flowers are large, double, fragrant, of a rich dark blue, and in the spring come in the greatest profusion.

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FORSYTHIAS.—So many early flowering shrubs are white, that the bright yellow of the Golden Bell, gains for it many friends. The flowers appear before the leaves. There are two kinds in nurseries, one known as *Forsythia suspensa*, and the other *Forsythia viridissima*. Both kinds can be produced from the seeds of the former, but they are distinct enough in appearance to make good nursery varieties. The former has a more graceful habit and makes a larger bush than the latter. The name "Golden Bell" was given it by the famous landscape gardener, A. J. Downing.

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DESTROYING WEEDS.—MEEHANS' MONTHLY has shown that the most troublesome weed,—not even poison ivy, or Canada Thistle, can possibly live if the young leaves are persistently cut away as they appear in spring. Referring to this advice, a correspondent of the *London Journal of Horticulture* says approvingly: "I asked one who had become wholly ridden of a most persistent weed how it was done, who said 'I cut them for a few weeks every Wednesday.'" There was no virtue in the Wednesday, but by having a set time the work was surely done.

MACADAM AND TELFORD ROADS.—It is remarkable, that of the thousands of intelligent people using these terms, rarely one can be found who understands what these roads are. Usually a broken stone road is called a Macadam road; but the principle of the Macadam road is to have the stone so broken and arranged, that when the road is finally finished under this system, not a stone will move out of place. Whoever saw a modern "Macadam" road in which the stone would not move into ruts or be in some other way misplaced, or ground to mud in a short time? So in regard to Telford roads. It has come to be understood that a road with large blocks of stone at the bottom, and small ones at the top is a Telford road; but a true Telford road is made by having the lower blocks of stone somewhat of the form of wedges with the narrow points upward, the broken stone then fills in between the narrow points and makes a sheet of stone, which is almost self-supporting; but a simple large block of stone without the precaution required by Telford, of having the narrow points upwards, simply sinks deeper into the ground with the first thaw, after the winter is over, and the whole roadway rapidly disintegrates. This is especially the case where the land is not underdrained. These principles in road making should never be forgotten—that a heavy body in the ground will sink in soft slush, and ground when thawed in the spring is in the condition of slush. The property of the writer of this paragraph occupies a portion of one of the heaviest battle fields of the revolution. Not unfrequently in digging deeply, leaden bullets are turned up. These are never found except at the depth of eighteen inches or two feet from the surface, yet it is evident that they were not driven this depth in the ground when the battle was going on; but they have gradually sunk. In the spring of the year, when the thaw comes, and the ground is soft, the heavy bullets go gradually down, so that at the present time they are found to the greatest depth that a frost has ever penetrated. So with the stone roads. Heavy blocks of stone, without something to keep them near the surface, must evidently sink.

RETINOSPORA PISIFERA--JUVENILE FORM.

SEE PAGE 67.

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FOREST PLANTING.—Among the benefactors of our country are those who are aiding to protect our forests from ignorant destruction. But even old trees will die sometime, and the greater public benefactor is the one who can show how the planting of new forests can be made practicable and profitable. Canada with all her present forest wealth, is looking to the future. The Dominion has an experiment forest at Ottawa of nineteen acres on which are planted ten feet by five, 15,500 trees. Planters can learn what and how best to set out, by what they learn there.

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WOMEN IN GARDENING.—Women have been successful as florists, seeds-"men," and in other branches of gardening. In London one of the most successful landscape gardeners is a lady—Miss Wilkinson. They have in that great city a very successful City Park and Public Garden Association, which aids the city in securing open spaces, and public gardens. This association employs the lady.

Three of the most successful of recently secured small parks,—Myatts' Fields, Camberwell, and Vauxhall, were improved from her designs. She is now at work on St. Mary's and Woolwich small parks,—and has been engaged by a cemetery company—the Victoria—to design and lay out the grounds for them.

DEEP PLOWING.—In horticulture as well as agriculture, there has always been a difference of opinion as to the value of stirring the soil deep. The discussion is another illustration of a point often made, that differences of opinion frequently come from not understanding what each side of the disputation means. If we have six inches of rich surface soil, and plowed twelve inches, supposing that could be done, by which all this rich surface soil is thrown to the bottom and the poor soil brought to the top, that would undoubtedly be an evil, as plant food is always in the best condition for assimilation by the plant when it is near the surface, so that oxygen can act on it. To bury food out of the reach of oxygen is literally to starve the plant. But deep soil is certainly an immense advantage to any plant, whether grown by farmer or gardener. What is known as subsoiling, that is, the loosening of the subsoil, while still retaining it as subsoil, leaving the upper surface where it was originally, near the surface, is one of the very best practices in either farming or gardening. If the question should be stated, is it right to bury good surface soil deep below the surface? there would only be a negative side to it.

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PUBLIC PARKS.—THEIR APPRECIATION.—The following note from Mr. Edwin C. Jellett, of Philadelphia, is timely:

"One so often hears the remark, that the Public Parks 'are only for the benefit of the rich,' that it is very refreshing and stimulating to have gone through the experience which we of Philadelphia have had very recently, and in which the voice of the people has unmistakably shown that they love their 'open places,' and that in the 'Wissahickon,' which is the one, great, distinguished, natural section of Fairmount Park, they will tolerate no disfigurement. This is doubly gratifying from the fact, that the 'Wissahickon' is a wonderful piece of natural scenery, and that it practically remains in its primitive condition. Scientifically and historically it is great. Such men as C. S. Rafinesque, Thomas Nuttall, Dr. Wm. P. C. Barton, Wm. Wynne Wister, Thomas Meehan, Dr. James Darrach, Isaac Burk, Robert Scott, Joseph Meehan, Charles S. Sargent, botanists: Charles J. Wister, Henry Carville Lewis, Angelo Heilprin, geologists: Alexander Wilson, John James Audubon, Thomas G. Gentry, ornithologists, and others too numerous to mention, have known it, have visited it, and many have explored it for the treasures it contains.

From the early days of the colonies it has been known and appreciated. Within the sound of its waters David Rittenhouse was born. From the shade of its lofty trees the noble Washington looked out upon its pleasantness, and from Judge Longstreth's house upon its bank, Benjamin Franklin who valued it, traced its outline to the 'head-lands,' beyond which it disappears. Not once, but many times, the armies of the Revolution crossed and recrossed its silver stream. More than once the roar of cannon reverberated among its hills. So many causes have combined to make this spot beautiful in the largest sense of that word, that it is to the credit of the people of Philadelphia, that they desire no change in the natural beauties of the Wissahickon whatever."

RETINOSPORA PISIFERA.—SEE PAGE 67.

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GRAFTED AMPELOPSIS. — The *Ampelopsis tricuspidata*, or as it is more generally known, *A. Veitchii*, is said not to be hardy in northern Wisconsin. The common Virginia creeper, *A. quinquefolia* is hardy enough. It seems strange that one should be hardy, and the other not. However, Prof. Goff has succeeded in grafting the Japan on the American root, and hopes to get hardy plants in this way.

ARAUCARIA IMBRICATA. — This extremely remarkable coniferous tree, of a family abundant in the fossiliferous age, but represented now by only a few species, was discovered over a hundred years ago in Chili, by Menzies, the botanist who accompanied Vancouver's expedition along the Pacific coast. The large seeds, like most pine seeds, are edible; and while Vancouver's party put into the port of Valparaiso, they were entertained by the Viceroy of Chili, who had these seeds on the table as a part of the dessert. Menzies knew at once that they belonged to a pine that he had not before seen, and he succeeded in getting five seeds, which were taken to England, and which subsequently grew. Since then the native localities on the mountains of Chili have been discovered. It is a tree that will not thrive very well in high summer temperature, nor does it like severe cold. Numbers of them have been introduced at various times in America during the last century; but we do not know where to look for any fine specimen. It must be that some of these have succeeded in getting through. Possibly there must be in some part of our country, specimens which have braved all the disadvantages of summer heat, and winter cold; and MEEHANS' MONTHLY would be glad to hear where there are any of these fine specimens. A popular name of the tree is "Monkey Puzzle." This name is said to have originated from the fact that monkeys are particularly fond of the seeds; and yet, on account of the stiff, prickly nature of the cones, find considerable difficulty in getting the seeds out.

FUCHSIAS AS BASKET PLANTS.

CONDITIONS OF CLIMATE.—It should not be forgotten that when we speak of climatic conditions in connection with gardening, low temperature is not always referred to. The dryness or the moisture in the atmosphere has quite as much to do with the perfect idea as temperature,—as has also light or darkness. Light, and not heat, plays the principal part in the proper circulation of the juices of plants. In a piece of dead wood it is simply heat which drives out the moisture, and this is truly called evaporation; but the evaporation of moisture from living plants, and which, perhaps, may be more properly called transpiration, is rather the effect of light than heat. Still most plants must have a certain temperature before they can ripen their wood well, and this ripening of the wood is oftentimes an element in success. The cultivation of the Grape vine, for instance, in the old world, where there is little bright light, the small light is of much more consequence than the actual temperature. In Englad, the Grape is rarely hardy in the open air. It is not so much because of low temperature, for England is by no means a cold country in the winter time, but because there is not heat enough in summer time to properly mature the wood. A large number of American trees, which will stand a temperature of zero in their own country, are not hardy in the milder climate of England. As regards moisture in the atmosphere, in our dry winter climate an evergreen has little chance; but in the moist climate of England the evergreen finds its paradise.

FUCHSIAS AS BASKET PLANTS.—The Fuchsia is admirably adapted to partial shade. For pot plants to adorn piazzas in summer, or for planting along walls or fences with a north aspect in city yards, there is nothing more valuable. They bloom the whole summer long. *Gardening Illustrated*, an excellent London horticultural magazine, finds they do admirably well as basket plants. Basket plants usually prefer somewhat shady places, and with American experience with Fuchsias in shady places, the hint is worth taking for gardening in America.

THE JUJUBE TREE.—It does not seem to be generally known that this tree, a native of Egypt and Syria, is absolutely hardy in most parts of America. In the vicinity of Philadelphia it is hardy as an apple tree. It was a general belief, in the past, that it was tender, and the famous Bartram planted one alongside of his house, in order that it might get some of the warmth and protection of the walls. One of the earlier Philadelphia merchants, Duval, who had a large conservatory, grew the tree in a tub, protecting it in the conservatory during the winter. Finally when it became too large to be so protected, it was left out in the winter to die, but it lived and became one of the attractions of his beautiful country place, in the vicinity of Philadelphia. From this tree numbers have been propagated, and are now found in collections around Philadelphia, although the original tree itself died a few years ago after having been blown over. It is a very interesting tree in many respects. Its habit is distinct from almost all other trees, by reason of the peculiar spread of its branches, and the branches themselves are flexuose, or zig zag. The flowers, green and insignificant, however, are borne on what seem to be leaves, and in the fall of the year these leaves drop, excepting those which are to produce the fruit. These seem to have a greater vitality, and remain on the tree until the fruit perfects. The fruit itself is about the size of a marble, and of an orange brown color. The pulp around the stone is the part from which the Jujube paste is made. This tree, as well as a dwarf species called *Paliurus aculeatus*, which is closely allied to it, has been taken for the plant from which the crown of thorns placed on the Saviour's head, was formed, and the term *Spina-Christi* is frequently applied to either of these plants, possibly for no other reason than because they are common, spiny plants in Palestine. The crown of thorns depicted on the Christ Crucified, of Rubens, seems to be intended to represent our Honey Locust, *Gleditschia triacanthos*, which, however, does not grow in Palestine, although some have thought that they can see some resemblance to the spines of the Jujube tree.

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THE AILANTHUS.—This is called in France the Japan varnish tree. It is at least the third kind of tree from Japan to which this name has been applied.

## FRUITS AND VEGETABLES.

THE ROUGH BARK OF FRUIT TREES.—The practical cultivator understands that nature makes provision for getting rid of the bark of trees as the trunk increases in size. On the growth of the past season may be seen small olive spots; these are formations of cork. From year to year, in subsequent development, these little patches spread, really eating their way through the bark. This is the provision which nature makes for finally rifting the bark in each species of plant. These cork cells have their own special lines of development, and this is the reason why each kind of tree has its own particular bark. The characteristics are so prominent that clever observers can select different kinds of trees by their bark, even at midnight. As it is the evident intention of nature to get rid of old bark, it is a great help to the tree to assist nature in this respect, and any washes or treatment which aid the plant in getting rid of it, is a practical advantage. Soapy water washes, or lye water is useful, and even scraping has been found of great advantage. In a rough sort of way, lime wash is frequently used. The only objection being the white and glaring color. It is, however, the cheapest and the best of all bark treatment.

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GRAPES IN CANADA.—That it is not cold but some other climatic condition that enters into the hardiness of plants is evidenced by grape culture in Canada. The foreign grape does better there than in the United States. At the great Columbian Exposition Mr. John Craig of the experiment farm at Ottawa, exhibited 122 different varieties of grape. It would be interesting to know how many of these were descendents of American species, and how many descended from the European stock.

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LARGE PEARS.—California has hitherto claimed the credit of producing the largest pears on record; but Mr. A. L. Walling, of Oswego, Oregon, questions this, and believes that he has raised the largest and the heaviest. A discussion is going on in some of the Western papers regarding this claim of Mr. Walling's, but the exact size of his pears are not stated.

THE EVENING PRIMROSE AS A VEGETABLE.—Recently MEEHANS' MONTHLY called attention to the numerous wild plants of our country worth an improver's care to develop into valuable vegetables. Foreigners are doing this for us. We might do it ourselves. In France our common evening primrose, *Œnothera biennis*, is often abundant in the markets. With this is an illustration of one taken from a piece of poor waste ground near us to show that even under the most unfavorable circumstances it has a fair sized root. It is about one-third the natural size.

ŒNOTHERA BIENNIS, EVENING PRIMROSE.

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THE BEET SUGAR.—The Beet Sugar industry has been found remarkably suited to the soil and climate of California. In order to have profitable crops, mere growth is not sufficient, there is something in soil and climate, which has an influence on the amount of sugar stored up in the beet root. In some parts of the country the beet root would have comparatively little sugar. In other sections, the sugar will be found to be in very great proportions, comparatively speaking. In the Eastern portion of the United States experiments have been very variable, and nearly all have been abandoned chiefly from this cause. It is stated, however, that so far eastwardly from California as Indiana, beet sugar productions might be profitable. Reports show that beets there will produce an average of twelve per cent. of sugar. In California as many as 7,000 tons of sugar have been produced from 50,000 tons of beets. The syrup produced from the same beets being included. The usual average is about 2000 tons of raw sugar from 20,000 tons of beet.

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TRANSPLANTING VEGETABLE PLANTS.—Prof. P. H. Rolf, the Biologist of the Florida Experiment Station, calls attention to the mistake which some planters of vegetables make, in using plants from the seed bed, for transplanting, that have been growing thickly together, and consequently have but a comparatively small portion of root. To many it seems a loss of time to transplant these vegetables when young, so as to give them more room to develop, and they think they can gain time by using these longer and slender plants, simply because they happen to seem to be large, instead of the stocky, transplanted plants, with an abundance of roots that may not be half the size. It is anything but time lost, to have a transplanted vegetable plant instead of one fresh from the seed bed.

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MUSHROOMS. — *The West Chester Village Record* in a very able article, calling attention to the great neglect of Mushroom culture, remarks, that, different classes of Mushrooms are favored in different states. In New York the Mushroom is preferred in the form of buttons, or cups, while in Philadelphia the preference is for the larger and flat condition, known as "broilers." The *Record* wonders why it is that market-gardeners and agriculturists with so many facilities for growing Mushrooms cheaply, would yet neglect this very profitable section of vegetable culture.

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PROTECTION FROM SPARROWS.—In the Old World where the sparrow abounds, linen twine soaked in tan is woven into net-work with meshes small enough to exclude these birds. As the sparrow is now becoming troublesome here the same method of protection will have to be resorted to.

SPRAYING FRUIT TREES. — Spraying fruit trees has now become such a regular part of a successful fruit grower's operation, that continual changes in formulations are being presented. It is found that solutions of copper sprayed over fruit trees are not only safeguards against the attacks of various insects, but are especially valuable against fungus diseases in Canada. They use the following mixtures: 10 pounds of sulphate of copper, or blue vitriol, to 100 gallons of water, and add about the same weight of fresh lime. The lime and copper are dissolved in separate vessels, and mixed only when ready for use. It has to be constantly stirred when about to be used on the plants. In the case of the apple, the spraying is performed just before bloom, after the growth starts, and once or twice after the bloom, which is for the destruction of the codling moth. For this latter process, a small quantity of Paris green, or London purple is added to the mixture. In many persons' experience the addition of lime is found to be of no great value, and is not used. It gives a whitish appearance to the foliage, which is not altogether agreeable; but there are others who contend that they have much better results when lime is used, as above indicated.

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BIRDS AND FRUIT GROWING.—There is often a great difference between what one may theoretically believe and what he finds profitably expedient. The writer of this paragraph was once passing by the residence of one fond of statistics, who had frequently urged the great value of birds to the American fruit grower. He was showing that only for birds, probably a million of dollars would be lost to the gardener and farmer in the United States annually by the ravages of insects which the birds destroy. Yet on the occasion above referred to, he was gun in hand, banging away at the robins that were depredating on his cherries, with a great deal more energy than one would expect from a man who so little a time before had been preaching up the advantages of the feathered tribe. And so it goes. One sometimes wonders whether the astute Maine politician, who told his hearers that he was a warm advocate of the Maine liquor law, but was opposed to its execution, had not more common sense than he is generally credited with.

CROSBY PEACH.—Those Horticultural magazines that expect to be bound for library reference for all time, can scarcely afford to follow closely the introducers of new fruits. It looks bad to read in the volume for 1894,—"We have to retract our statement made in 1893 that perfection had been reached in Adam's new gooseberry, for in Eve's new seedling we have one that is far superior." MEEHANS' MONTHLY prefers to let new varieties record their own good deeds. The Crosby Peach seems to be a kind that has come to stay awhile and is well suited to New England gardens. It originated near Lowell, Mass., in 1875. It is one of the sweetest of the yellow Crawford class, and a particularly abundant and regular bearer.

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SPRAYING NURSERY ROWS OF FRUIT TREES. Mr. C. L. Longsdorf of Floradale, Pa., notes that although the application of the Bordeaux mixture to rows of fruit trees in a nursery is very satisfactory, the expense and difficulty of preparing and applying it is too costly and needs cheapening. He finds that the ammoniacal solution is much cheaper and very easily prepared; but he thinks that a good sprayer adapted to nursery work has not yet been invented. It would be interesting to know from those who have used these articles in nursery work, their conclusions as to the best methods of applying them.

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THE PLUM IN CALIFORNIA.—Notwithstanding that the plum seems to be so remarkably well adapted to the north of Europe, it seems to vie with that portion of the old world, when introduced into California. California fruit-growers state that the trees in a ten acre plum orchard, and only four years old, near Visalia, have near the ground, an average of sixteen inches in circumference and an average height of twenty feet. Certainly this cannot be excelled, if even reached by some of the most successful plum growing districts of the old world.

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THE ELBERTA PEACH.—A Buffalo correspondent notes the extra hardiness of this variety. Crosby, Stump the World and others were severely injured by the winter's cold (700 trees in all, of different varieties), while every tree of the Elberta was entirely uninjured.

# BIOGRAPHY AND LITERATURE.

## TO THE MEMORY OF J. M. A.

A FRAGMENT.

*"Durum! sed levius fit patientia*
*Quidquid corriger est nefas."*

HORACE.

* * * Once more
Blue skies have followed sunny rain—
The glorious spring is here again.
The trees are budding in the wood,
By hill and dell, by fount and flood,
And a sweet spirit fills the air
Of life and beauty everywhere.

With rich festoons the budding vine
Garlands the cliff and crowning pine,
But from the pine a stifled sigh
Comes as I wander silent by
And says, with faint-heard spirit-tone
"We know wherefore thou art alone."

I know these woods are still the same
As when we here together came,—
I know these quiet paths we ranged
Are by the woodman's axe unchanged,
That lowly, by the limpid rill,
The fair spring-beauty blossoms still,
And that the winding river flows
With the same flow that seems repose.

Now on the great elm's sunny crest,
The grosbeak, from his rosy breast,
Pours forth, with veiled and mellow voice,
His warble to the spring. "Rejoice,"
It seems to say, "from grieving cease."

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But o'er the sunlit wood and glade
There broods the shadow of a shade—
A shade another cannot see.
That dims this light alone to me—
My spirit sad that will not quit;
A grief divine and infinite.

The hills, the dells, the streams, the leas,
I know there is no change in these,
On which the quiet sunlight shone
In springs that are forever gone.

They are the same, yet not the same,
As when from out the mart we came
Together here to while away
A golden hour of some sweet day.

The Shadow, feigned of fateful mien,
That mingles with us all unseen,
Thee, through the silent realm and dim
Had singled out to follow him.

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HOWARD WORCESTER GILBERT.

East Park, Philadelphia, April, 1891.

COMMON NAMES FOR PLANTS.—Pretty common names for our pet flowers are always welcome, when they become common. It is their use in general literature before the name has become general, that makes general trouble. Of this trouble Miss Bennett says:

"Usually common names are localisms. In some sections *Richardsonia scabra* is "False Ipecac." What is commonly known in the South as "Beggar-weed," even more commonly "Beggar-lice," is *Desmodium molle*—good food for stock. *Helenium tenuifolium*,—when eaten by cows, ruination to milk,—when made into tea, destructive to "Texas fleas," is familiarly written of as "Yellow Mayweed," though not a Mayweed at all.

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GREEN GAGE PLUM.—The Green Gage plum is of French origin, and is the representative of a race known as Reine Claude, about which the *Gardener's Chronicle* has the following paragraph:

Reine Claude, commemorated by a race of delicious plums, was the queen of Francis I of France. It is narrated of her (says the *Bulletin d'Arboriculture*), that she caused a man to be hung for stealing her plums. Shortly after another candidate for the gallows passed by, and on inquiry being made as to the reason for this second execution, the answer given was, "Not for stealing plums, this time."

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BOTANY AND HORTICULTURE IN THE PUBLIC SCHOOLS.—Every now and then our newspapers paragraph the desirability of having the elements of botany and horticulture taught in the public schools. The difficulty in the way is that text book instructions are already about overdone, and, besides teaching from text-books, teachers who do not themselves understand what is being taught, rarely amount to much. But in more recent times very much is being done in the public schools, by teaching from nature, and simply directing the young minds to see, to compare, and to think. In this way a live, active teacher, with

no great profundity in science, can do remarkably well. In Boston, as we see by a recent issue of the *Globe*, teachers and children visit the city green-houses, and listen to instructions from the City Gardener, Mr. Doogue. In this way both teachers and children are alike instructed. A delightful account is given of a recent trip under the Misses Martin and Hough, teachers in the Martin school. It is certain that the young minds will remember what they hear on occasional trips of this kind, as long as they live, and the information gained must have a great influence for good, on their whole lives. In Philadelphia much of this work is also being undertaken. Under the lead of Prof. Wilson, the eminent botanist, green-houses have been established in connection with the Girls' Normal School. Two of the teachers of this school have become excellent students in botany, the Misses Williams and Schively, who give weekly lectures to the Principals of other schools, drawing their lessons from actual illustrations from the living plants which have been growing in the conservatory. The Principals again carry the lessons they have received, to their schools and instruct the children again to see and to observe. Nothing is taught that is in the least hard to learn, or requiring any great effort of the mind to memorize. They are simply trained to see from living specimens, to observe, to compare and to judge. It is the only school in Philadelphia where the teaching is from nature, and without books. In the Germantown section of the city, in which the writer of this paragraph resides, one school under the charge of Miss May R. Caroland, has followed in Prof. Wilson's track, and botanical and horticultural matters are taught from nature on the same plan. The children all go to this school with as much pleasure as they would go to play, and in consequence of the pleasure which this kind of teaching affords, become so interested in their other studies, that they will learn as much in two years in this school, as in three years in schools where memorizing is chiefly the rule. There is no reason why under this simple method of teaching lessons in science may not be introduced anywhere.

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ROBERT LYALL.—One of our Northwestern Larches *Larix Lyalii* is supposed to have been named in honor of Robert Lyall, a botanist of whom little is known. The *Gardener's Chronicle* states that the date of his birth in Scotland is not known, but that the earliest record of him is as a student of chemistry and medicine in the University of Edinburgh, in 1801. His earliest botanical papers were about 1811 on the irritability of plants. In 1815 he resided as a physician in a gentleman's family in Russia. In 1820 he appears to be residing near Moscow, as he assisted Dr. Goldbach in publishing a list of plants growing around that city. He made an extensive tour through the Crimea in the interest of science and returned to Moscow in 1822. He left Russia for London in 1823. In 1827 he was appointed British agent in Madagascar. In 1829 the natives of Madagascar took superstitious offence, and he had to flee the country, contracting a fever before he reached Tamatave, and died at Port Louis in the Mauritius, 1831. A large portion of his botanical collections are in the Kew Herbarium.

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THE LANDSCAPE OF TITIAN.—A correspondent notes in relation to the gardens of the ancients, condensed from an article in the *Gardening World*, that Titian was a figure painter and never painted landscapes. The correction is due to the many classical students who are readers of MEEHANS' MONTHLY.

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MR. GILBERT'S POEM.—The beautiful poem of Mr. Gilbert is rather longer than usually selected for these head-lines, but it is so full of natural associations with human life, to illustrate which is the object of this section of the magazine, that the conductors cannot forbear choosing it. It has had only a transitory appearance in print before.

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"INJURIOUS INSECTS AND THE USE OF INSECTICIDES." By Frank N. Sempers. Published by W. Atlee Burpee & Co., Philadelphia. This is another of the series of remarkably beautiful and instructive serials issued by this well-known firm to which reference was recently made in these columns.

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THE LECTURES OF THE SEED GROWERS AT THE WORLD'S FAIR.—Atlee Burpee & Co., the well-known seed firm of Philadelphia, have done good service in issuing with their catalogue the papers on seed sowing and seed culture read at Chicago.

# GENERAL NOTES.

Flowers in Glass. — A Bohemian glass worker has been able to reproduce flowers in glass to such perfection, that it is almost difficult to conceive that they are not natural. Harvard University possesses a collection which, according to the Boston *Transcript*, is the only one in existence. They are housed in the University Museum at Cambridge, over the door of which is inscribed, "The Ware Collection of Blaschka Glass Models." They were presented to the University by Mrs. Elizabeth and Miss Mary L. Ware in memory of Dr. Charles E. Ware. The collection occupies 33 cases. In 1854 Leopold Blaschka, who was born in 1822 at Aich, a village of Northern Bohemia, commenced this wonderful work. His specimens were seen by Prince Camille de Rohan, and as fast as any rare plants bloomed in the Count's gardens, they were sent to Leopold who reproduced them in glass. In 1862 he had 60 species of orchids. The collection was, however, destroyed by fire, but in 1866, at the solicitation of Prof. George Goodale, Director of the Botanic Garden at Cambridge, the father and son under great pressure, consented to go on again with their models. Mrs. and Miss Ware seeing them, authorized him to make the contract with the Blaschkas. At the present time they are under contract to give their entire time to the Museum of Harvard University for a series of years ; the younger one journeying to the tropics and elsewhere, making botanical analysis and drawings, which he carries back to Germany for reproduction in glass. They keep their method of procedure and their process of manipulation an entire secret. They manipulate the glass while it is still plastic by heat. Even those intimate with them are not allowed to know of the process by which the glass is colored. The shipments as made are received in February and August of each year.

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Polygala Senega.—Can any friend send the Conductor a few seeds of Polygala Senega, the coming season?

Shetland Ponies.—It is believed that the small Shetland Ponies have been developed from the larger horses, of the rest of the herd. In consequence of a smaller amount of food at the command of the horses in the more northern regions, resulting in what might be termed a constant struggle for existence, they have become reduced in size ; and, in that way, took on the characteristics which distinguish them now from other breeds of horses. This must surely be nothing but an ingenious surmise. Rough figures of horses and riders have been discovered on the sculpture of the earlier Celtic inhabitants of the Shetland Islands previous to the Norwegian invasion, and there seems to be no difference now between the Shetland ponies and those of these remote ages.

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Aconitum uncinatum.—The next plate will represent one of the most beautiful of the wild flowers of the Southern Alleghenies, one of the curious aconite family, *Aconitum uncinatum*, from a specimen gathered by the senior conductor at Hawksnest in Virginia. Much as some recent pictures of wild flowers have given pleasure, it is believed this will at least equal any of them in this respect.

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A New Name for the Tulip Tree. — Botanists have been unanimous in adopting *Liriodendron tulipifera* as the proper orthography for the name of the tulip tree,—but an Italian botanist, Ugolini, contends they are all wrong, and that the name should be written "Leyriodendron." He says the original Greek derivative is *leyrion*. It is not stated whether our friend is of the Montagues, or the Capulets.

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Plum Growing in Maine.—Prof. Munson of the Maine Agricultural Experiment Station, says that plum growing, once abandoned in the Penobscot valley, is again being profitably undertaken in some portions of the State. Aroostook county has three-fourths of the plum orchards.

# ACONITUM UNCINATUM.

## AMERICAN MONKSHOOD.

### NATURAL ORDER, RANUNCULACEÆ.

ACONITUM UNCINATUM, LINNÆUS.—Stem smooth, vine-like, erect; leaves three to five-cleft, with the lobes ovate-lanceolate, coarsely toothed; raceme few-flowered; flowers large, blue; upper sepal helmet-shaped. Stems two to six inches long. Leaves rather rigid. (Chapman's *Botany of the Southern United States.* See also Gray's *Manual of the Botany of the Northern United States*, and Wood's *Class-Book of Botany.*)

The natural order *Ranunculaceæ*, to which the aconite belongs, is, to use a botanist's term, a very natural one. And yet the flowers often assume such odd forms, that the general observer, unused to analysis, would scarcely imagine they all belonged to one family. The larkspurs and columbines, with their long spurs or nectaries, are in striking contrast with the regularity of the buttercup. Here in the aconite, we also have a striking irregularity. What we note as the beautiful blue here, is chiefly the calyx, composed of five pieces. One is very large, and forms the hooded upper portion we call the helmet, which can be readily seen in any of the flowers in the picture. Then there are two lateral ones that are rounded, which we may almost call wings. Finally we have the other two at the lowest point, long and slender, and very unlike the other three. The artist has afforded an excellent front-face view of these five differing sepals in Fig. 1, so that the whole flower, as we see it, is composed but of a colored calyx, with highly diversified sepals. When we open these slightly, we find two small petals with a short spur or nectary, as if the plant would, on a little provocation, start itself on the road towards a larkspur. There ought to be five petals to correspond with the five sepals. We can often trace the rudiments in the lower portion of the flower, but if they were to be fully produced the plant might not be regarded as an aconite. It is the great and singular irregularity, and the over-development and under-development of parts, that make it what it is.

When the species here illustrated was first discovered, there was no other one known from the New World. And as there were a number described from other parts of our globe, it was natural that it should be distinguished as the American Aconite. Since then Dr. Asa Gray discovered another species, *A. reclinatum*. When Dr. Gray issued his illustrated genera of North American plants in 1848, these were then the only two known to our country. Since then Nuttall discovered another distinctively American species, now known as *A. Columbianum*. It is found in the Rocky Mountains and westwardly, and is often marked *A. nasutum* in herbariums. The famous *A. napellus*, of Europe, is found in the Northwest, with some variation from the typical form; and another Siberian species, *A. Kamtschaticum*, is occasionally found. These are all the species of aconite the United States possesses.

Our species, *Aconitum uncinatum*, derives its name from the incurved or hooked spur on the small included petals which has already been referred to. Its leathery leaves are also usually only three-lobed, as shown in Fig. 2. The upper sepal is also at least as well markedly helmet-shaped as any in the genus. Its very slender flexuous stem is also characteristic. Indeed, it is almost of climbing habit. One of the earlier botanists, Elliott, in his *Botany of South Carolina*, notes it as climbing, and Muhlenberg named it *A. scandens* from its supposed climbing power. There is an allied species in Siberia, *A. volubilis*, that does absolutely climb. The specimens from which the illustration was taken, grew in the steep rocky slopes of the New River, near Hawksnest, in Virginia, together with coarse grasses, sedges, *Lilium superbum*, and other strong growing vegetation, but managed to push its slender, heavy, almost climbing stems above them all. Virginia seems to be its natural home, though it extends northwardly along the Alleghenies to New York, and southwardly

as far as the Alleghenies go. Westwardly it is not often found at low elevations, though it was collected in the barrens of Indiana by Dr. Short.

One of the most interesting features of modern botanical geography is the discovery of the fact that in the Atlantic portion of the United States the vegetation has a marked similarity to that of Japan, and many species are exactly the same. This species of Aconite is one of those common to both portions of the earth. Thunberg, in 1784, described the Japan species as *A. Japonicum*, which has since been found identical with this species of Linnæus, named in 1764, so that our name has the prior right. It is called in that country Loo Huso. The species, however, varies somewhat, and some botanists have noted two marked varieties, one as *Linnæana*, the original form as described by Linnæus, with a pointed horned helmet, as in Fig. 3, and variety, *Michauxiana*, with the point still different. But as our picture shows, these characters vary on the same plant.

Philip Miller says it was cultivated in 1770 by James Gordon. It does not, however, take well to cultivation, in American experience. It seems to have been first received from Philadelphia, and Pennsylvania is given in subsequent notes.

The whole family of aconite is often called Wolfsbane, because a species growing in the Alps was used to destroy wolves and bad dogs; and the family history of the genus is a record of deadly poison. Indeed, Shakespeare and other poets not only refer to the plant as the "deadly aconite," but use the name of aconite for any subtle, deadly poison. One of the ancient Ovidian fables has its chief incident based on the deadly effects of the plant. The plant itself was raised from the foam from the mouth of the terrible dog Cerberus, that guarded the entrance to the infernal regions. Medea, the sorceress, determined on the destruction of Theseus, bethought her to employ this aconite which she had brought with deadly intent from Sythia. Ægeus, however, saved him from her deadly hate. The story is thus translated by Sandys:

"And now arrives, unknown, Ægeus' seed,
Who, great in name, had two-sea'd Isthmos freed;
Whose undeserved ruin Medea sought
By mortal aconite, from Sythia brought;
This from Echidnean dog dire essence draws.
There is a blind steep cave, with faggy jaws,
Through which the bold Tyrinthian hero strained,
Dragged Cerberus, with adamant enchained;
Who backward hung, and scowling, looked askew
On glorious day, with anger rabid grew;
Thrice howls, thrice barks, at once with his three heads,
And on the grass his foaming poison sheds.
This sprung; attracting from the fruitful soil
Dire nourishment, and power of deathful spoil.
The rural swains, because it takes delight
In barren rocks, surnamed it aconite."

In regard to the origin of the name Aconite, as applied to this plant, it may be noted that many of our botanical authorities accept the explanation of the Roman poet without question. The name is, however, Greek, and Theophrastus, the Greek author, who flourished some two centuries and a half before Ovid, states that the name is from the village of Akonat in Bithynia, and because some species grow plentifully there. The only true Aconite now growing in Greece is the well-known *A. Napellus*, but, according to Sibthorp, it does not grow in Bithynia, but in Laconia, some thousand miles southwest, where it is still known in vernacular Greek as aconite. It may be rash to disturb now, what centuries of scholarship have accepted, but it does look as if the modern habit of shrewd guessing was not unknown two or three centuries ago. It can scarcely be believed that one plant once so abundantly native in Bithynia, and reproducing itself so easily by its little turnip shaped roots (the name Napellus is derived from the turnip-like resemblance), should have since wholly disappeared. The aconite of the ancients was especially deadly. An old writer says, "The heads of Arrows being dipt into the juice thereof, so Empoysons them that they kill all Living things who are Wounded therewith." In olden times, however, many things were grouped together under the name very distinct from the genus as now limited. Gerarde relates that in his day the most venomous kinds were other Ranunculaceæ with regular flowers, and that the irregular ones that we now limit as aconites, were regarded rather as antidotes. Griffith, in his *Medical Botany*, reports that some careful experimenters have not found the noxious properties in them to the degree others have.

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EXPLANATION OF THE PLATE.—The upper portion of a flowering stem in three sections. 1. Front face view, showing the five irregular sepals. 2. Showing the usually three-lobed leaf. 3. Showing the usually reflexed curve of the apex of the helmet.

# WILD FLOWERS AND NATURE.

## AMERICAN WILD FLOWERS.

But here at home, where we were born,
Thou wilt find flowers just as true,
Down-bending every summer's morn
With freshness of New England dew.

For nature, ever kind to love,
Hath granted them the same sweet tongue,
Whether with German skies above,
Or here our granite rocks among.—LOWELL.

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SPRING FLOWERS NEAR PHILADELPHIA.—Mr. Edwin Jellet notes :—"To those who find pleasure in keeping a record of nature's expressions, the present season will long be remembered as one among the most remarkable ones. On Christmas Day, 1893, the shepherd's purse, dandelion, chickweed, quaker-lady, skunk cabbage, and witch-hazel were found in full bloom, and on Easter Day, March 25, 1894, the following plants were noted in full bloom :—

| | |
|---|---|
| Acer rubrum | Swamp maple |
| Acer dasycarpum | Silver maple |
| Alnus serrulata | Smooth alder |
| Benzoin odoriferum | Spice-wood |
| Capsella bursa-pastoris | Shepherd's purse |
| Comptonia asplenifolia | Sweet-fern |
| Chrysoplenium americanum | Golden saxifrage |
| Claytonia virginica | Spring-beauty |
| Crocus vernus | Crocus |
| Cercis Japonica | Japan judas tree |
| Draba verna | Whitlow grass |
| Equisetum arveuse | Horse-tail |
| Epigæa repens | Arbutus |
| Forsythia viridissima | Golden-bell |
| Galanthus nivalis | Snow-drop |
| Houstonia cœrulea | Quaker-lady |
| Hepatica triloba | Hepatica |
| Hyacinthus orientalis | Garden hyacinth |
| Jasminum nudiflorum | Yellow jasmine |
| Lamium amplexicaule | Ground ivy |
| Magnolia conspicua | Early magnolia |
| Orontium aquaticum | Golden club |
| Pyrus japonica | Fire-bush |
| Populus monilifera | Cotton-wood poplar |
| Symplocarpus foetidus | Skunk-cabbage |
| Stellaria media | Chick-weed |
| Saxifraga Virginiensis | Saxifrage |
| Taraxacum dens-leonis | Dandelion |
| Ulmus fulva | Slippery elm |

That so many plants at so early a date were to be found blooming simultaneously, was indeed remarkable, and it would serve to show, that the vagaries and development of the seasons, are dependent upon causes and influences, in the main unknown to us."

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ROOT GROWTH OF THE ADDER'S-TONGUE.—Mr. Willard N. Clute, Binghamton, N. Y., remarks that "those who have dug up the bulb of the 'Adder's-tongue,' or 'Dog-tooth-violet,' know that it is located deep in the ground. How this bulb gets so far beneath the surface, is a question. The plant sends up a blossom and produces seed. The seed falling on the earth produces new bulbs as is proved by the numerous small bulbs found half-buried in the earth. Since the blossoms come from the deeper bulbs, these surface bulbs must go deeper, else there is no use of the plants producing seed ; but if they do go deeper, no one seems to have explained how it is accomplished. It has recently been found [Report State Botanist of New York, 1893,] that bulbs of this plant often send out long, white leafless runners that produce new plants. These runners often come to the surface and after describing an irregular curve enter the earth again. But this does not explain what becomes of the small surface bulbs. It is well-known that the individuals of this species that bloom each year, are greatly outnumbered by those that do not. Are these non-bloomers the products of the immature bulbs?"

As the writer understands the case, the bulbs are annual, a new bulb forms on the end of the stolon or runner, and the parent bulb subsequently dies. The stolon that forms the flowering bulb, pushes deep into the ground.

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FLORAL CALENDARS.—It has been stated that the times of flowering in plants depend on the seasons, and hence floral calendars are impracticable. To some extent this is true, and yet there is an average time for each flower. The Skunk Cabbage, for instance, may be said to flower in February, but it is sometimes in flower in January, and occasionally not till March. It would be fair to fix "February" as its usual time of flowering. There is rarely exactness in nature. We say in a general way that the sun rises in the east and sets in the west ; but in the latitude the writer lives in, it is rising in the southeast to-day.

THE COMMON NAMES OF TRILLIUM.—In addition to what has appeared about the Trillium, Prof. E. J. Hill, Englewood, Ill., says :

"The inquiry in the February MEEHANS' MONTHLY about the significance of bath-nut as a name of *Trillium erythrocarpum*, recalls some of the names that were known to be applied to Trilliums in Western New York in boyhood days, and probably in use still. The plant best remembered and the most common one in that part of the Genesee country was *Trillium erectum*. Its common name was red bethroot. Those with white flowers were called white bethroot, probably without limitation to the white-flowered form of this species, but applying to all with white flowers which grew there. Sometimes they were called bath-root, and it may be bath-flower, a name subsequently made familiar from "Wood's Botany." I do not remember having heard them called birthroot or birthwort. This seems to be the correct name as far as this class of names applies, and the source of those with kindred spelling. It doubtless was connected with the medical properties of the plant, real or imputed. Rafinesque gives the name bethroot in his "Medical Botany." The red bethroot was the one most esteemed, which would also be in harmony with a statement of Rafinesque, that "the Indians have a notion that those with red blossoms (which they call *male*) are the best." The medical uses of *Trillium* were evidently derived from the Indians, the genus being so largely North American. One of these uses was in connection with parturition, so that it would be very natural to give them the name applied in England to *Aristolochia Clematitis*. The appellatives *beth* and *bath* I have regarded as corruption of *birth* since the name birthroot was learned. The substitution of one vowel for another, and the occasional dropping of *r* before *t* or *rt* are ways in which other English words are changed in pronunciation, and which may become permanent in a name used by common people.

May not the appellation bath-nut be due to some resemblance the short, thick rootstocks of some species have to a nut,—not very close, perhaps, but sufficient to suggest a name? Other examples of this are found in groundnut, a common name for the edible tubers of *Aralia trifolia* and of *Apios tuberosa*, and in nut-grass, a name which comes from the nut-like tubers of *Cyperus rotundus*. *Trillium erectum* has a large premorse root-stock, whose abrupt ending below the rootlets was a great oddity when dug up for use or examination in those early days of inquiry into the secrets of the fields. The name might indeed be derived from the shape of the rather large globose or ovate, berry-like fruit borne by several of the species, but this seems hardly as probable, since solidity or hardness is usually associated with a nut. The fruit of *T. erectum* is quite large and nearly black, or reddish-black, and has a suspicious look; while that of *T. erythrocarpum*, as its specific name indicates, is of a brighter red.

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VARIATIONS IN LEAVES.—Mrs. W. A. Kellerman writes : "The statement made in the February number of MEEHANS' MONTHLY, in commenting on the note concerning variation in horse-radish leaves, that 'all leaves have a tendency to become entire as they approach maturity,' will bear discussion, for it seems to me that the reverse is true of plants generally. Those plants which produce the cut or divided leaves when young, and entire ones when mature, being the exceptional ones (and possibly these exceptions can be satisfactorily explained at another time).

The young seedlings of most plants bear entire leaves. In the maples, walnuts, hickories, chestnuts, etc., the mature trees present the most complex foliage. The leaves of the seedling maple are not lobed. Those of the chestnut are almost entire; the walnuts and the hickories have simple, instead of compound leaves to start with. The young oak trees bear larger, but never so deeply lobed leaves as the mature trees. The seedling *Trillium grandiflorum* has but a single leaf during the first year; and it takes the *Podophyllum* several years to reach the nine to eleven-lobed form of leaf.

The general tendency of plants seems to be to bear divided foliage. The entire leaves would become notched or lobed; the lobed ones, parted or divided; the simple, would become compound; the compound leaves still continue the upward march by becoming de-compound. There are examples and illustrations of this tendency everywhere. Scarcely a plant that one may pick up, but is an affirmative argument of this progressive variation.

The ferns which uniformly have finely divided foliage, still retain, at the extremity of their fronds, evidences that in the long, long ago, this division was in its incipient stages. The division in the ferns proceeded in the same way as it has in the walnuts, the hickories, the coffee tree, etc., and for similar reasons. The vegetation which towered above the ferns in that far-off dawn, smothered and starved them, and it was essential to their existence that they better sift the air, which came to them, second-hand, as it were, and the best sieve nature was able to devise was the finely divided foliage.

Those plants, therefore, which are capable of adapting themselves to this over-population condition, are the ones most likely to survive the longest on the face of the earth, providing climate, and the other conditions of environment continue favorable."

Thanks are due to Mrs. Kellerman for the opportunity of correcting an ambiguous expression. The facts are just as she states them ; but it was the intention to go farther with the illustration than she has done. The trees have, at first, entire leaves ; with youthful vigor the leaves are more divided. When the flowering stage is reached—which was intended by maturity—the leaves again become more entire, frequently appearing as mere bracts.

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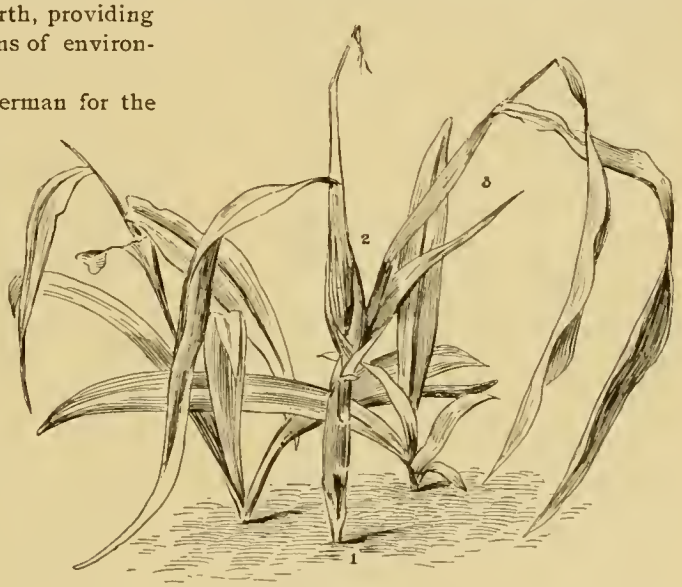
A PIGMY CORN PLANT.—In a recent issue of MEEHANS' MONTHLY, note was made of the efforts being made in some schools in Boston and Philadelphia, to teach "science" in schools by merely directing children to observe, and to compare what they saw for themselves under the direction of wide-awake and progressive teachers. The school supervised by Miss May R. Caroland in Germantown, was referred to because it happened to be under the eye of the writer. Recently one of the assistant teachers in this school, Miss Susan Snyder, sent to this office a pot of Indian Corn plants, raised by the children from seed sown by them during the past winter, among which one took on itself to start an ear of corn, when but a few inches high. The illustration gives it reduced two-thirds. The "silk," or mass of styles, is protruding from the apex, and the miniature male flowers forming the tassel, are in the sheath on the upper portion of the stalk. Had the pollen perfected there might have been a full ear of corn. Children of a "larger growth," as well as the little girls in Miss Caroland's school, may learn valuable lessons from this pigmy corn plant. For instance, it is often a source of wonder after ploughing up an old pasture or clearing an old wood, to note something growing that was never known to be there before, when really they were overlooked, and had been seed-bearing and seed-growing continually in a miniature condition




YOUNG INDIAN CORN PLANTS.
Reduced ⅔
1. Plant bearing a grain spike. 2. The ear in silk. 3. Male flowers in the sheath.

that led to their not being seen ; and we may further learn that the ear of corn is really the central portion of the axis or stalk, and that when the central portion becomes arrested in its growth for reproductive purposes, it is pushed on one side, and the terminal shoot becomes an axillary ear of corn. Then a side branch erects itself, and becomes the leader in the place of the leader deposed ! The writer of this has shown in more technical papers, that this is the order of things in many cases. In no case that we know of, however, is this better illustrated than in the case of this little corn plant.

CHARACTER OF THE ACONITE.—In regard to what is said of the aconite in another column it may be added that, on the whole Griffith believes the evidence to favor the belief that it is possessed of extremely acrid and dangerous properties. Salmon seems to hint that the name aconite may have been derived from some old Greek root having reference to the deadly character of the ancient kind, whatever it may have been.

At the present time the genus embraces about 80 species, — botanists differing as to whether some should be classed as more than marked varieties.

Whatever may be the merits of the controversy as to what was the terrible aconite of old, or the true character it ought to bear, the poets have so stamped it as the emblem of deceit, that there will probably be no escape from this reputation.

Bowring expresses the universal thought when he says :

> "And such is man, a soil that breeds,
> Or sweetest flowers, or vilest weeds,
> Flowers, lovely as the morning light,—
> Weeds, deadly as the aconite."

It is, however, some comfort to believe that our beautiful floral friend does not deserve the dark character with which history has surrounded it.

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THE AMERICAN ELDER.—Possibly one of the most widely distributed plants known is the elder tree. It is found all over the north of Europe and Asia, and extends over our American continent from the extreme north almost to the equator. The forms of Europe, Asia and America have been given different botanical names, on account of the very slight difference—so slight that in few other plants would these differences be considered to warrant different names. The American form has been supposed to be different from the European mainly in its inability to make a comparatively large tree, as its European ally does ; but Dr. Bronson, of Indian Springs, Florida, has specimens quite as large of the American species, *Sambucus Americana*—quite as large as has been recorded of any specimen of the European form, *Sambucus nigra*. The writer of this paragraph has himself seen in sheltered places in New Jersey, the common form with a trunk 12 inches in circumference and eight feet high, although this luxuriant growth is unusual so far north. Specimens of considerable size have also been found in the West Indies. It seems remarkable that a plant which should start in the extreme north by being of considerable size, should get smaller as it travels through the United States, until, reaching its southernmost limit, again produces plants of a large size. This is not in accordance with the general law prevailing in these cases.

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THE BARK OF TREES.—A number of correspondents have written of the pleasure which the recent note on the bark of trees has given them. A number of them state that it has opened up an entirely new feeling of interest in their wanderings through the woods and forests. One of them calls attention to the criticism that has been made on the statement that the rough bark of trees is of no value, and nature is trying to do its best to get rid of it, and that it is the object of the good fruit grower, to help nature to get rid of this bark as soon as possible. The critic states that the rough bark of trees is there in order to protect them from the sun in summer or the severity of the temperature in winter time. Another illustration is given of the danger of reasoning out practical subjects by merely sitting in one's room and thinking. It would seem, without looking closely, that the rough bark of trees might be of some value as a protector ; but on examining trees it will be found that its rough bark only comes into existence at stated periods during the tree's life. Some trees will get rough bark on branches that are but three or four years old. On another species of tree, the rough bark appears about the twelfth year, while in some others, as in the ordinary chestnut, the rough bark does not appear until twenty years. Now it does not take a great effort of reasoning to conclude that if a tree does not need protection to its bark until it is twenty years old, it would scarcely need rough bark after that period. One would suppose that the rough bark, as a protection, would be of more service the first twenty years than it would at any subsequent period. However, it would be well for students to look at the trees themselves in order to see the absurdity of the suggestions, that the rough bark of the tree has anything to do with protective duties.

# GENERAL GARDENING.

## THE SONG BIRD'S WELCOME.

When warm South winds evoke the vernal
showers,
To budding plum-trees feathered songsters fly,
And revel in the fragrance of the flowers,
And carol forth their gladness to the sky.
Now that no more are felt keen winter's harms,
Each longs most ardently for peace and rest;
Within the lovely plum-trees' sheltering arms
Each yearns to build and hover round his nest.

*—From the Japanese, by W. R. Furness, in Lippincott.*

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LAWN GRASS.—Questions are often put as to the proper amount of seed to sow per acre in order to get the best results in lawn grass; the usual quantity is about 75 pounds to the acre. This depends, however, a good deal on the kind of grass used, some being lighter per bushel than others; but when what is generally known as mixed lawn grass seed is employed, this is about the quantity to use. It may be remarked in this connection, that very much of the beauty of a lawn depends on its being properly weeded. The first season, in spite of every precaution, weeds will appear. It is not that the seeds of the weeds are mixed with the seeds of the grass as a general thing; but the weeds come from the seeds which will lie in the earth sometimes for several years before germinating. These coarse weeds should be dug out with a pointed trowel or sharp knife, and if comparatively large holes are made, these should be filled with earth. Towards the dry weather of summer the whole should be thoroughly rolled. Of course many weeds can be pulled by hand. After the grass gets started and has thorough possession of the ground, it will itself keep down the most undesirable weeds.

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THE ST. JOHN'S BREAD TREE. — Notwithstanding the belief of Prof. Riley that St. John was just as likely to have fed on the real locust as on the succulent seed vessels of *Ceratonia Siliqua*, this particular tree will always be known as St. John's Bread Tree. It has been very successfully introduced into southern California and southern Florida, and is now getting in good demand. It is known as the carob tree, which is the Arab name for the seed pods, on account of their horn-like shape. They like a rather dry climate. Two very fine trees are said to be growing on Mt. Olivet, just above the Garden of Gethsemane. It was a great surprise to Americans to see among the collections of agricultural articles from the South of Europe, during the American Centennial, how much this tree was appreciated; as nearly every collection had samples of varying varieties in their lists. In the South of Europe it is generally the chief article for feeding horses, cattle and swine, as well as the general article of food among the poorer natives.

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IMPROVEMENT IN THE SAND CHERRY —It is remarkable that no attempt has been made to improve the dwarf sand cherry, *Cerasus pumila*. The famous garden plum is supposed to be an improvement on the "Sloe"—the wild plum of the north of Europe—a much less likely subject for improvement than the sand cherry. It is now, however, being taken up by Martin Klein of Detroit, who is selecting and pushing the best of them. Such attempts deserve encouragement. When people read his advertisements as relating to the "Dwarf Cherry," it must not be supposed he is referring to cherries grafted on the Mahaleb stock, which are generally known as "Dwarf Cherries." It is the misfortune of most matters of this kind, pushed by those who have not had much horticultural experience, that they spoil their cases by too much extravagance of expression through not knowing what has gone before. If we remember that it is the sand cherry which is being pushed as "Dwarf Cherry," we may fairly be glad this long neglected native American is getting a chance at last. Four two-year old trees in full bearing made a great deal of attraction at the World's Fair, in Chicago, last year. The four trees had at least 600 cherries on them.

HYBRIDS BY GRAFTING.—Whether hybrids can be produced by grafting or budding, is still a mooted question. A Laburnum, known as *Cytisus Adami*, which appears to be intermediate between *C. purpurea* and *C. Laburnum* is generally regarded as a successful instance. There are, however, many thoughtful students who have experience with the remarkable manner in which plants will sometimes vary, where no question of hybridization can possibly be raised, who have had some doubt about the hybrid origin of this curious production. Dr. McFarlane, however, of the University of Pennsylvania, is thoroughly satisfied from microscopical examination of the structure, that it is a genuine case of graft-hybridization. A correspondent of the *Botanical Gazette* gives instances of two geraniums being simply inarched together and then allowed to grow, each in its own way. One was a pure white and the other a pure red variety. Now the flowers produced on each, have blotches of white among the red flowers, and blotches of red among the white ones. In no other way, however, do they show any hybridization, leaves and other characteristics of each are precisely the same. That color is affected by graft hybridization has been long known. Variegated abutilons may be produced in the whole stock of a green-leaved variety, by simply inserting the bud from a variegated plant. Blood-leaved Birch has been known to affect the trunk of the regular green-leaved Birch. It has been grafted so to have blood-leaved branches come out from the stock. Similar experiences are quite common,—and it is certainly fair to infer that if the transfusion of characters can thus be accomplished so far as color is concerned, other peculiarities might also be conveyed. At the present stage of the question, it is fair to decide that the probabilities are in favor of the proposition that there may be such things as graft-hybrids.

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VARIATIONS IN THE ORDER OF MAGNOLIA FLOWERINGS.—In the last generation the dates of flowering of plants were carefully noted, and a general belief seemed to prevail that they came into bloom at about the same time every year. Recent observations show that not only is this incorrect, but that flowers, which will bloom before some other species one year, will be last and not first in another year. This comes from the different effects of temperature. A few days of very warm weather will frequently bring some plant forward very rapidly, while another only comes forward rapidly under the more lengthy period of the lower temperature. A remarkable illustration of this is given by the order of flowering in the list of Magnolias given in the London *Gardeners' Chronicle*. The order is given as follows :—

"The general order of flowering, beginning with the earliest, is, M. conspicua, M. stellata (Halleana), M. conspicua Soulangeana, M. conspicua Alexandrina, M. conspicua Norberti, M. purpurea, M. Fischeri, M. conspicua speciosa, M. conspicua Soulangeana nigra, M. purpurea var. Lennè, M. glauca, M. glauca Thompsoni, M. Campbelli, M. tripetala, M. acuminata, M. hypoleuca, M. Fraseri."

In America the order of flowering of all these species is very different. The *conspicua* is all right. In America as in England it is the first to open its blossoms ; but *glauca* instead of being in the middle of the list, as given in here, is about one of the last to flower in America, while *Fraseri*, which is put in England last on the list, flowers in America before *tripetala*. The list as given will, however, be very interesting to our readers, who can for themselves watch the suggestion of the flowering of the species in our country.

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HARDINESS OF THE CRAPE MYRTLE.—Mr. Albert L. Willis, New York, notes that "In the northern neck of Virginia, on the Chesapeake shore, the crape myrtle grows to a height of fully fifteen feet. The latitude is near that of New Albany, but the winters average milder, roses sometimes blooming in mid-winter."

In Philadelphia the crape myrtle dies to the ground in winter, but springs up from the roots and flowers as if it were an herbaceous plant.

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SCIENCE IN THE SCHOOLS.—Miss Bessie L. Putnam, remarks that she is glad that MEEHANS' MONTHLY is agitating the question of Science in the public schools. She would like to see beds of wild flowers connected with public school yards, and she thinks that this is more especially feasible in the yards of country school houses where there is more room than in the school yards of our cities.

THE CAMELLIA IN HARDY GARDENING.—There are scarcely any plants of Japan but which thrive well in many parts of the United States, but the Camellia does not seem to have had the attention it deserves. The double forms are grown in some gardens south of Baltimore, but even these are seldom seen. As a rule double varieties are not as hardy as the original single ones. It is more than likely that if the wild single form of Japan were given a fair chance, it would be found to thrive far northwardly. The fair chance would be to plant it in the shade of buildings, or even in the shade of a wood if the tree roots were far enough away to prevent the earth from drying. Possibly one of the finest specimens of the wild form out of its native places, is in the gardens of Queen Victoria, at Osborne House, in the south of England, of which an illustration has recently appeared in the *Gardeners' Chronicle* The red cup-like flowers, as seen in the picture, are nearly as numerous as the leaves, and must form a gorgeous sight when in blossom. Such a lovely picture is worth some trouble to reproduce in an American garden.

THE WILD CAMELLIA.
Flowers bright red, with yellow stamens.

DOMESTICATING CAMPHOR TREES IN THE UNITED STATES.—Although the camphor tree is a native of China, Japan and Formosa, the authorities of the United States Department of Agriculture state that it has been a subject of distribution by the Department for nearly thirty years. It is a very ornamental plant and has been used to some extent as a shade tree. The trees thus distributed are grown from seeds, the plants being raised in the nurseries of the Department. The camphor tree flourishes in perfection in some of the Southern States, especially along the Gulf coasts. It grows rapidly from the seed, and the Department of Agriculture has frequently raised seeds from this source, which, when sown in a garden border, as a common garden pea is sown, rapidly vegetate and form plants from eighteen inches to two feet in height the first season. While the camphor tree flourishes best in warm climates, it will stand twelve degrees of frost without being injured, and any locality where the thermometer does not show lower than 20° F. is fitted for the growth of the plant.

PRUNING HEDGES. — In the pruning of hedges, as well as in the pruning of other trees, it should not be forgotten that the ultimate effect of all pruning is to weaken the growth power of the plants. This is evident to any one who will consider the effect of pruning a hedge. Though the plants may be 20 years old, it is seldom that the plants in the hedge rows will have stems thicker than one's wrist ; while if the same plants had been suffered to grow up as trees they would have trunks of three or four feet in circumference. Applying this principle to pruning in general, no young tree should be touched for some years unless with the evident object of keeping it small and dwarf; and in the treatment of hedges especially, the young plants set out should not be touched until they have acquired great vigor of growth. In setting a hedge of osage orange, for instance, the plants should be suffered to grow as they will, for two or three years, according to the richness of the soil and the vigor of growth ; and after they have achieved this extra vigor, they should then be cut to the ground in the winter season. The result of this is that very strong and vigorous shoots then push up, and these can be trimmed into the form desired, during the next growing season ; and for hedge purposes, the form should always be that of a truncate cone. The object of this form of training, is to allow every leaf to have the full benefit of sunlight, which they cannot have when the hedges are trimmed perfectly upright and flat on the top. Hedges trimmed in this latter way, soon get bare of foliage at the base ; while hedges trained conically, always retain their strength and foliage clear to the ground. In pruning trees, the same principle prevails. If a large tree be headed off severely, it seems to throw out a few very strong branches ; and the impression might be given that this was an evidence of the strength of vital power ; but the reason for this strength is that the new branches with their numerous leaves avail themselves temporarily of the large supply of food stored up in the trunk. But these same leaves have to store up food for another year, and it is impossible for the comparatively few leaves—no matter how strong these shoots may be—to furnish sufficient food for the enormous number of cells which require nutrition. As a consequence, numbers die of absolute starvation, and rotten portions appear in every direction. Large trees so pruned, consequently, soon become hollow from decay, and very often die within a few years ; or if they live at all, are never healthy. Lengthy chapters might be written on the minute details of pruning, without telling more of general principles than has been given in this paragraph.

THE PEPPER TREE.—For many years in the gardens of the curious, a plant was frequently grown, called *Schinus Molle*. Its chief interest to the public mind was the fact that when the leaflets were broken in little pieces, and placed on the surface of a vessel of water, they would dart and shoot like living creatures in every direction. This was believed to be caused by the propulsion of a gas from the veins and mid ribs. This tree has now been introduced into California for the purpose of shade, and is widely known as the pepper tree. It exudes a gummy matter from the foliage, which is said to cover the tops of carriages driving under it, with spots. The gum forms a good dentifrice, and it is said that a lotion made from the bark is good for reducing inflammations. It was supposed to be a tree which would be distasteful to all insects ; but the California papers tell us that in that country it is subject to the ravages of a scale insect ; and this is about the only defect to its general use as a first-class shade tree.

CELERY CULTURE.—An animated discussion is going on in English horticultural papers as to whether it is better to grow celery in deep trenches or to plant near the surface of the ground. So far as a looker-on at this distance can judge, the advocates of the deep trench system are able to prove that they can raise the largest, finest and best flavored product in this way. On the other hand it seems to be conceded that fairly good celery can be produced at a less cost when planted near the surface.

THE CHINESE PINK.—This was first sent from China to Paris by missionaries in 1705. The double ones were first noted among seedlings in 1719 in Paris gardens. Of late years the improvement has been rapid, and to-day there are few more satisfactory or beautiful plants in garden borders, than the improved China pinks.

SUMMER PRUNING OF FRUIT AND ORNAMENTAL TREES.—In the art of pruning nothing is more essential than a knowledge of what ought to be done in the summer time. It is quite common to find parties objecting to street trees or orchard trees growing tall, and in order to make them low and bushy the heads are sawed off in the winter time. Very little observation would show that such trees send out strong and vigorous shoots during the summer, which grow rapidly upwards, and take the place of the branches cut away. It is a maxim in social economy, that the tendency is for "the rich to get richer, and the poor to get poorer," and this maxim equally applies to the branches in the community which we call a tree. The tendency is for the stronger branches to get stronger and wholly at the expense of the weaker ones. The proper thing to do, is, in the summer, when these strong shoots push out from near the places where the larger ones were cut away, to pull them out by hand as soon as they appear. The vigor of the plant is then thrown into the side branches, and in this way we can get the strong lower branches which are desired. In like manner shrubs are pruned in the winter time, in order to keep them low. Anyone can see that the shoots which push out from the top of the bushes are all the stronger, through having the plant cut back. If these strong shoots are pulled out, as sprouts, early in the season, vigor would be sent into the lower branches, and we should then get the dwarf bushy plants required. This is a great reason for the summer pruning of hedges, and also the reason why the truncate-conical form is adopted for hedging. We cut off the strong shoots which are always at the top early in the summer, and the result is that the vigor of the plant is thrown into the side branches. In no other way can we keep a hedge bushy at the base. It used to be an axiom with practical gardeners, that summer pruning weakens, and winter pruning strengthens the parts of a tree just below where the pruning has occurred. In a certain sense this is true. It does no harm, however, to accept this as an axiom; and the man who believes that summer pruning weakens the point where the pruning occurs, and winter pruning strengthens it, will have a good base on which to operate. Pull out strong shoots, in summer,—let weak ones grow.

## FRUITS AND VEGETABLES.

SEEDLESS GRAPES.—It has been stated in a recent essay by a prominent horticulturist, that seedless grapes are produced by growing a plant from cuttings for several successive generations. The theory is, that a plant becomes accustomed to this mode of propagation, and then the natural process of producing seeds becomes abortive by disuse. While those of wide experience may smile at this speculation, it is really one on which many scientific men differ. That there is no ground whatever for believing that seedless grapes can be produced in this way, is evident from the case of the red currant of our gardens. This has been continuously propagated by cuttings, from the time when the Romans had sway in England; and yet, as it is well known, it produces seeds as freely to-day, as if it had been raised continuously from seeds for a couple of thousand of years. Just how Nature does produce the seedless grapes is not yet well known; and the honest answer to the questions as to how seedless grapes are produced would be to say that "we don't know."

BLACK SALSIFY. — This is the American name, which is now widely prevailing for the vegetable known in the old world as Scorzonera. It is a near relative of the Salsify, although that also has been Americanized as Oyster plant. In the books on vegetables it is described as a somewhat bitter root. A Buffalo correspondent notes that it is not bitter at all; but that the pure white flesh under its black skin has a sweet nutty flavor. In the family of our correspondent, it is one of the most favored vegetables, — she says her boys eat them as they do raw turnips,—and while the family will somewhat tire of the common Oyster plant, the taste for the Black Salsify never runs out.

CROCUS AND SNOWDROP.—These as usually planted in gardens are not wholly satisfactory; but any one who has a few dozen trees forming a small piece of woodland, should plant these bulbs to remain in permanence. They thrive remarkably well in such situations, and add very much to the beauty of a natural piece of open woods. The best time to plant them is in September or October.

POPULAR KNOWLEDGE OF FRUITS. — The valuable knowledge stored away in the proceedings of societies is enormous. Some rich association would render good service by annually going over all issued, and indexing with abstracts all that is new. The proceedings of the Georgia State Horticultural Society, just issued, is especially notable for its value. By the way, in looking through it one will be struck by the statement of Major Glessner, that the public are so utterly ignorant of the varieties of fruit, that the showiest has to be grown for them, irrespective of quality. But the public does certainly come to know in time the difference between a good looking poor fruit, and a plain looking thing of good quality in other respects. The Delaware grape sells well for all its small size, and the Rhode Island greening apple is as popular as a kind with rosy cheeks.

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DANDELION AS A SALAD.—In the vicinity of Philadelphia, as soon as the spring season arrives and the dandelion pushes its leaves through the ground, and before the snow is hardly melted, large numbers of men, women and children hunt the fields for dandelion greens. It seems remarkable that a plant which is so popular in its wild state as a delicious vegetable, should be wholly ignored by cultivators. By selection, large, strong leaved varieties could be produced, and would no doubt sell as readily and profitably as spinach does, in the fall of the year. Besides this, it transplants easily, and when blanched is regarded by many as far superior to the best forms of lettuce.

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CELERY.—Supposing that the selinon of Homer's Odyssey is correctly identified with our modern celery, celery is one of the oldest of cultivated vegetables. The consumption in America is enormous. According to the census of 1890, there are about 16,000 acres devoted to celery market gardening.

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PRODUCTIVE PEAR TREES.—There seems to be gaining ground a belief that the stamens of some varieties of pears are not productive of perfect pollen, and that in these cases they are productive only when planted near kinds which produce an abundance of pollen. This is quite likely to be the case, as a similar circumstance is known in connection with the strawberry, which belongs to the same family of plants as the pear. The Seckel pear is considered one of the varieties which has an abundance of good pollen, and is able, therefore, to produce large crops of fruit, even when the tree is entirely isolated.

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CAMPHOR. — It is very gratifying to note that more attention has been paid to introducing economic plants and trees than heretofore, with a view to adding to the variety of American industries. The Camphor tree is one of these. It has been grown to considerable extent in California, and also in Louisiana and Florida ; but it is not yet certain that the collection of the gum of the tree can be made profitable. An enormous amount of camphor is imported annually, and if all this could be saved to our country, it would be a great commercial gain.

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BANANAS.—It is well known to experienced fruit growers, that some fruits require to be gathered before ripening, if we would get the best flavor from them. Indeed, ripening pears is quite an art, requiring considerable skill. The *Popular Science Monthly* says that the best bananas, like some pears, must be gathered before ripening. If ripened on the tree they are poorer. Those found in all our markets are gathered before ripe.

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DESTRUCTION OF SCALE IN CALIFORNIA.—Where fruit growing is carried on to such an enormous extent as to be one of the most important industries of the State, spraying has become such an essential power in cultivation that even large boilers of eight or ten horse power are used in connection with the practice. It is maintained that when the material is prepared in a hot water vat under long boiling,—that is to say, two or three hours,—the mixture becomes so perfect that scarcely the slightest trace of remains can be found on the trees. For the destruction of scale, 50 pounds of lime to about 100 pounds of sulphur are placed in vats, and then about 100 gallons of water run into the vat from the hot water tank ; steam is then turned on. After two or three hours boiling, about 150 pounds of lime and 75 pounds of salt are added, when the whole is boiled for about an hour longer.

PEAR—DUCHESSE D'ANGOULEME.—This is still one of the chief favorites with pear growers, on account of the large size, beautiful appearance of the fruit, and abundant bearing proclivities. It is, however, one of those pears which require considerable art in producing to perfection. As very often experienced, they have a poor flavor and general character. Those amateurs who desire to have them to perfection will find it an excellent variety to experiment with. It is generally believed that this is one of the pears that require to be left on as long as possible before being taken from the trees; while some pears require to be gathered somewhat early. This, however, is a mooted question; and we have never known any two good pear growers to agree as to which is the best plan. Much, probably, depends on the health of the tree itself. Sometimes leaves fall by the operation of a fungus before they would otherwise ripen naturally; at other times, the leaves remain healthy and green until frost destroys them. Very much of the character of a pear on ripening, depends on this circumstance. This pear is especially valued by those who grow them on quince stocks. Whoever wants a dwarf pear is almost sure to select this variety for the top of the list.

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THE FINGER-LEAVED MOON-FLOWER.—Numberless beautiful flowers have been introduced that would give pleasure to thousands, but which have fallen into obscurity because no one has had the pecuniary courage to push them. *Ipomœa Bona-nox* had been known to the collectors of the curious, but not till it was pushed as the moon-flower did it reach hundreds of gardens. There are scores of these moon-flowers, or morning glories, just as deserving as the Bona-nox. One other of these is now being pushed by the Michels of St. Louis. This is a bright rosy pink, known in some works as *Ipomœa paniculata*,—but which the "Index Kewensis" regards as a synonym of *I. digitata*, which is characteristic of its finger-formed leaves. It is a native of the tropics of both hemispheres. The perennial root can be stored like dahlias.

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STRAIGHTENING CROOKED TREES.—One cannot always get a straight tree of the kind desired. A crooked tree or none is then the only alternative. A correspondent, Mr. J. C. Roop, of Stroudsburg, shows how easily the crooked may be made straight by the following illustration. A very stout stake is first driven in, and then a stout piece of wood fastened to the stake, is made to fit in against the outer side of the curve. The upper portion of the bow is then drawn back till the trunk is on a straight line and then secured. After one year of this treatment the trunk will continue straight. When a tree is but a few years old, and can be made to bend by the hands it can be bent straight by main force. Though the wood may crack or split somewhat under the strain, all will grow together again, and no injury result.

STRAIGHTENING A CROOKED APPLE TREE.

# BIOGRAPHY AND LITERATURE.

## THE LOST FRIEND.

If only in my dreams I may behold thee,
Still hath the day a goal;
If only in my dreams I may enfold thee,
Still hath the night a soul.
Leaden the hours may press upon my spirit
Nor one dear pledge redeem;
I will not chide, so they at last inherit
And crown me with the rapture of that dream.

Ten thousand blossoms earth's gay gardens cherish;
One pale, pale rose is mine.
Of frost or blight the rest may quickly perish;
Not so that rose divine.
Deathless it blooms in quiet realms Elysian;
And when toil wins me rest,
Forgetful of all else, in blissful vision
I breathe my rose, and clasp it to my breast!

FLORENCE EARLE COATES,
*in Atlantic Monthly.*

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YELLOW OAK.—The continual changing of botanical names, as often as it is discovered that some obscure writer or obscure publication has had a name, which under the iron bound "rule of priority" should prevail, is found to operate disastrously in practice. It is worse with common names. It is very difficult to get a common name of a tree into common use, and the great objection to common names is because like common sense they are very uncommon. It is unfortunate that when once a common name really becomes common any rule should upset it. Almost universally *Quercus tinctoria* has been known as "Black Oak," but the United States documents have recently been applying the term "Yellow Oak" to this species. The "Yellow Oak" hitherto has been *Quercus castanea*, of Muhlenberg. It may be noted that what is commonly known as the "Chestnut Oak" is the one formerly known as *Quercus monticola*. This is distinguished from the former in correct popular designation as the "Rock" Chestnut oak.

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THE GREAT COLUMBIAN EXPOSITION.—The fair is over,—but its great work is only just beginning to tell. Had there been no fair, there would have been no great volume like "The Book of the Fair" to perpetuate its wonders. Bancroft & Co., of Chicago, are issuing a magnificent folio work of 1,000 pages, and 2,000 illustrations of the leading exhibits so as to strengthen for all time the memories of those who saw the wonderful sights. If the fair was worth seeing at all, the "Book of the Fair" will be a necessary memento. Nos. 11 and 12 have the fruits and forestry exhibits depicted and described. Aside from the instructive reminders the superior artistic character of the book in paper, printing and engraving will make it a library or parlor ornament which any family may prize.

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AUDUBON.—Audubon was born in Louisiana on the 4th of May, 1780. His father, though French, settled in Louisiana, but purchased a farm near the present village of Narcissa on Perkiomen Creek, not far from Philadelphia. This farm young Audubon inherited about 1798, and here he was hereafter, whenever he was "at home." He remained pretty steadily here for twelve years, clerking for a company which was operating a lead mine near there. The old house is still standing, as is the neighborly house from which Audubon had his wife. It is said to have been a strong love match. In 1810 he started off on his great hunt for birds, removing his wife and children to Henderson, Ohio. In 1826 he went to London, where his great work on American Birds was published.

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THE AMERICAN FLORIST COMPANY'S DIRECTORY. One of the best trade papers in the world is the *American Florist*, and it is possibly through its influence that the great organization known as the American Florists' Association achieved such prominence. Great as the profession of the florist has become in America through these organizations, it will require a directory like this to afford a full appreciation of its magnitude. It is published by the American Florist Company, Chicago.

DR. WILLIAM BALDWIN.—Two pretty composite plants collected by William Bartram in the South, were named by Nuttall, *Baldwinia*. Of Baldwin Dr. Gray says: "Dr. Wm. Baldwin, collaborator with Elliott, died early." Few know how much of the great advance which botany made in our country in the early part of the century is due to Dr. Baldwin; and only for the glimpse of him through his letters as collected by Dr. Darlington, very little would be known of him at all. The portrait here given, is from the painting by Peale, and evidently from the same plate as that given in Darlington's "Reliquæ Baldwiniana." He was born in Newlin Township, Chester County, Pennsylvania, on the 29th of March, 1779, and died at Franklin, Missouri, September 1, 1819, while acting as naturalist on the great expedition of Major Stephen Long, to discover the sources of the Mississippi. He was an explorer during all of his comparatively short life. He sailed for China in 1805. He wrote a treatise on some peculiar diseases of seamen in China, on his return. In 1811 he made a botanical exploration on foot through Georgia. In 1812 he served as surgeon in the navy, in 1816 botanically explored Florida, and in 1817 went as surgeon in the frigate "Conggress," on Rodney's mission to South America.

Wm. Baldwin.

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C. C. FELTON.—C. Conway Felton, formerly President of Harvard, was born at West Newbury, Mass., and according to the *Boston Traveller*, was probably the most eminent Greek scholar in America. He was as full of fun as the jolliest of his students could be. He enjoyed once telling the writer of a good joke on his friend, Professor Asa Gray. He, with Dr. Gray, and a few friends of science were taking a rural jaunt, and, as is usual with students in science, were continually jumping out of a sudden for some flower, insect, or other good subject, evidently to the alarm of the driver. Once they were all out but Felton. The driver took the chance to inquire who his patrons were, and was told "a party of naturalists from Boston." "I thought so," was the driver's satisfied remark.

Subsequently President Felton heard the driver telling another of his fearful experiences with "a party of naturals from an asylum in Boston"—natural being synonymous with "imbeciles" in that city. Felton thought that often the antics of an over-joyed scientist might reasonably be taken for those of an insane man.

# GENERAL NOTES.

ADDITIONAL SMALL PARKS IN PHILADELPHIA.—Three more of the small parks located under the Meehan ordinances have been taken actual possession of by the city of Philadelphia. One was once the homestead of a branch of the original founder of the eminent Wharton family, and is now known as Wharton Square. The city paid out for this $60,000. Another, Stephen E. Fotterall Square, costs the city $130,000. The selection of this name will commemorate a rare mark of filial affection. Mr. Meehan, in his efforts to serve the city, asked Mr. Fotterall what he would throw off of any amount a jury might award, if the Park were named Fotterall Square,—there being no historic associations connected with the spot. Mr. F. disclaimed any desire for fame of that kind, but offered to throw off $10,000 if the initials of his grandfather, Stephen E., who was an officer in the war of 1812, should be appended to the name, and for whose memory the family entertained a warm affection. It is worth placing on record that this full name was given to this square for a reason like this. The plot is one of the largest of the small squares taken so far, being about eight acres, and is close to what was once the old garden of Bernard McMahon, in whose house the famous expedition of Lewis and Clark across the continent was planned; on whose grounds the first osage orange and other seeds collected on that expdition were sown,—and after whom Nuttall named the *Mahonia*. McMahon's trees and home were swept away before Mr. Meehan got his small Park law into practical operation, or these famous grounds, like Bartram's, Wister's, Logan's and others, might have been saved for posterity.

The third, and one of the greatest of these small Park achievements by the city of Philadelphia, is Vernon Park, the price awarded being $323,300. This was the home of the early Philadelphia banker Meng, a rare lover of plants, and under whose patronage Kin made his unrecorded collections over the Eastern part of our continent, but whose plants are among the treasures of the Royal Herbarium in Berlin. The first *Magnolia macrophylla* ever cultivated is still living in Vernon Park.

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SPROUTING OF SEEDS IN THE HUMAN SYSTEM.—When Baron Munchausen relates that, getting out of shot he loaded his gun with cherry stones, and the next year saw the deer he had fired at, covered with young cherry trees sprouting from all parts of its body, the doubting Thomases remarked on the impossibility of seeds sprouting in this manner. But it is recorded that a little girl, Addie Cunningham, of Fall River, Mass., had a water melon seed to lodge in her wind pipe. After being there since September, it was removed last February, and found to have pushed out its rootlet to a considerable extent. If it had reached the stomach, the gastric juice would probably have destroyed it.

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MERTENS.—A very curious error in modern botanical bibliography has been brought to our attention by a sharp eyed, and therefore specially valued correspondent. It is hardly likely that Roth would name a plant after a boy who was only one year old. There seems a sad mixture of these several Mertens. The Royal Society's catalogue does not give the initials of the "——Mertens," who wrote the works on Algae, and after whom the genus was named; and though the second volume of Roth's "Catalecta" is at hand, the first is not. It was in this first volume the plant was originally described.

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ST. JOHN'S WORTS.—In July, just about the time when collectors of wild flowers become interested in St. John's Worts, some one species or another of which may be found over most of the Union, MEEHANS' MONTHLY will help them by giving a colored plate of one of the number. *Hypericum densiflorum*, one of the most delicately pretty of the group, will be illustrated in the July issue.

# HYPERICUM DENSIFLORUM.

## DENSE-FLOWERED SHRUBBY ST. JOHN'S WORT.

### NATURAL ORDER, HYPERICACEÆ.

HYPERICUM PROLIFICUM, LINNÆUS.—Branching; branches ancipital, smooth; leaves oblong-lanceolate, obtuse, narrowed at base, crenulately waved at the edge; cymes compound, leafy; sepals unequal, leafy, ovate, cuspidate; petals obovate, a little larger than the sepals. Leaves 2 to 2½ inches long, 4 to 6 lines wide. Flowers 9 lines diameter, orange-yellow, in an elongated inflorescence. Stamens indefinite, flowers July and August: *Var. densiflorum*, Torrey and Gray. Branches very numerous; leaves crowded, much smaller (less than 1 inch long); flowers very numerous, in compound cymes, and much smaller (about 6 inches in diameter). (Wood's *Class-Book of Botany*. See also Gray's *Manual of the Botony of the Northern United States*.)

Although the description adopted from "Wood's Class-Book of Botany," gives this as a mere form of *Hypericum prolificum*, the tendency of later botanical thought is to accept Pursh's opinion that it should be honored with a distinct specific name. It will probably for all time stand as *H. densiflorum*, Pursh, who first described it under this name. The relationship to *H. prolificum* is undoubtedly close, but it retains its peculiarities over so great an extent of territory, and shows no disposition to have intermediate forms rendering the collector uncertain in which species to place it. It is only when such intermediate forms occur that the botanist regards a proposed species, as a variety merely. It not only maintains its distinctness when growing side by side, but when growing under different circumstances. Pursh noted it as growing on the "Dry ridges and Savannahs of the Virginia mountains." It has since been found abundantly in flat sandy locations, or as Britton says in his "Catalogue of New Jersey plants," the pine barren country, and confined to the yellow drift, and retains all the peculiarities characteristic of mountain specimens. The illustration is from a New Jersey plant.

It has a remarkably rich and glowing effect on the landscape in its New Jersey home. Cowper's description of its European ally, *Hypericum perforatum*, might, in many respects be more appropriately applied to this.

> "Hypericum all bloom, so thick a swarm,
> Of flowers, like flies clothing her slender rods,
> That scarce a leaf appears———"

The black dots which seem to cover the young flowers, and which may give a fly-like character to the perforated St. John's wort, are wanting in this species, but the "all bloom" well describes it. The dense heads of golden yellow in the height of its season, well warrants the statement "that scarce a leaf appears." As shown in the plate, the weaker branches, forming the upper portion of the plant, usually die during the winter, a peculiarity which adds much to its dwarf and densely shrubby character.

Although some botanists, notably Torrey and Gray, in their "Flora of North America," have endeavored to classify the species by the number of the carpels, some being said to have the "carpels pentacarpellary" or with five-celled fruit, and others with fruit "tricarpellary" or three-celled, this character is remarkably inconstant in many species of *Hypericum*. The artist has here given sketches (Figs. 2, 3) of fruit from the same plant, showing in Fig. 2, a full face view and cross section of a tricarpellary case, and at 3, one with four—one, however, being smaller, though apparently as fruitful as the other three. The origin of the name *Hypericum* is lost. Some plant under this name was known to the Greeks as far back as written history reaches, the plant of Dioscorides being identified by Sibthorp, in his "Flora Græca," as *Hypericum crispum*, and some authors suppose the name derived "from *yper*, on account of, and *errike* heath, from its growing in similar places." But Sibthorp states that this plant grows in Greece "in cultivated places," which is the last place that a heath would be found to grow. Others state that "the name is derived from *uper* and *eicon*, an image; the superior part of the

flower represents a figure." But this is evidently also far fetched. It is safest to say of *Hypericum*, "derivation unknown."

It is remarkable, however, that from the earliest times the plant has been connected with the legendary lore of many nations, and if the origin of its name could be traced it would probably be found in connection with some curious story. The strongly perforated leaves, especially of the species known distinctively as *Hypericum perforatum* attracted particular attention. Describing a festival of flowers, an old author says :—

> "Hypericum was there, the herb of war,
> Pierced through with swords, and seamed
> with many a scar."

and the dots and globules of gummy matter on the flowers and leaves were held as of peculiar significance. In the old Scandinavian mythology, Baldur was the analogue of Phœbus the Grecian sun-god, and the little sun-like flowers of the *Hypericum* were probably dedicated to him. To this day the plant is known to the Norwegians as Baldur's plant. The little red globules which appear at times on the plant are called Baldur's blood. In modern history the plant has been dedicated to St. John. This saint is usually represented with a sun-like halo round his head, and it is more than probable he replaced the Scandinavian sun-god, and that the legends connected with Baldur's plant, followed the plant when it became St. John's wort. A writer quoted by the Reverend Hilderic Friend says : "St. John represents among the Christian Saints the light *par excellence*. His festival falls at the time of the summer solstice, or on the 24th of June, the last of the three days which mark the culmination of the sun's ascension in the heavens. On this day the sun may be said not to set, the night is so short, if night there be, for the whole heavens are in some places, luminous and bright. The St. John's fires which are lighted here symbolize the celestial fire, the sun. * * * According to a popular tradition found in Tuscany, the dew which falls on various plants before the sun rises on the morning of St. John's Day, is capable of preserving the eyes from all diseases during the rest of the year. In Sicily it is usual to gather the St. John's wort and dip it in oil, so transforming it into a balm for every wound."

The same author says : "The plant used to be gathered on the eve of St. John's Day, June 24th, and hung up near the door or window as a preservative against evil spirits, thunder and other much dreaded ills. It is said that the custom of gathering it as a preservative against thunder is still observed with great ceremony on St. John's Eve by the peasantry in some parts of France and Germany, while the Scotch formerly carried it about their persons, as a charm against witchcraft. The plant was at one time in great repute for its supposed influence in conjurations and enchantments, as we learn from the fact that it used to be called *Fuga dæmonum*, or, as we might say in English 'scare-devil.' The name *Hypericum*, by which the St. John's wort is known among botanists, is an additional testimony to the fact that it was regarded as having magical properties over evil spirits, for that name comes from a Greek word, meaning 'to hold over in such a way as to protect from any thing.'"

Our American species of *Hypericum* have found no place in legendary lore, poetry or sentiment, but having to bear the family name of St. John's wort, may claim to share in a portion of the family history.

There are about 160 known species, of which about twenty-five are indigenous to the United States. The present species has an additional interest beyond those growing in other localities from its forming one in the list of species common to high regions in the lower Alleghenies and the lowlands of the Jersey coast. In these high regions are often considerable areas of these lowland Jersey plants, giving the impression that when the mountains were thrown up the plants were elevated with them.

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EXPLANATION OF THE PLATE.—A branch from a New Jersey plant, showing the growth from below the dead branches (Fig. 1.) of last year. 2. Elevation and cross section of a three-celled capsule. 3. The same of one four-celled.

# WILD FLOWERS AND NATURE.

## SUMMER.

Then came the jolly Summer, being dight
In a thin silken cassack coloured greene,
That was unlyned all, to be more light:
And on his head a girlond well beseene
He wore, from which, as he had chauffed been,
The sweat did drop; and in his hand he bore
A boawe and shaftes, as he in forrest greene
Had hunted late the libbard (leopard) or the bore,
And now would bathe his limbes, with labor heated sore.
—SPENSER.

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TESTING THE AGE OF TREES BY THE RINGS OF WOOD.—Mr. Thos. H. Douglas, of Waukegan, Ills., sends some facts in connection with observations in California, made on many different coniferous trees in which the age was exactly known, and in almost all the cases the rings of wood were in excess of the known age. In no case, however, according to the figures which he gives, were any of the number of rings double the age of the trees, and Mr. Douglas seems to account for this by the fact, that in some seasons, trees will make two growths, and he sees no reason for believing why, with two starts of growth in the branches the same season, there may not be two corresponding circles of wood. The writer of this paragraph has never been satisfied that those who have advocated the growth of more than one ring of wood a year, had made a careful and accurate observation that warranted their deduction; but after reading the careful statements made by Mr. Douglas it does seem perfectly clear that more than one circle of wood can be added to the trunk in some seasons. It will not do, therefore, to count too closely the age of a tree from the concentric circles in any case where a tree is likely to make two growths a year. It may be noted that in the vicinity of Philadelphia the strong branches on the English oak, frequently make three rhythms of growth a year, and the apple also has two cycles of longitudinal growth in almost all their branches. Nurserymen who are continuously planting and cutting down trees, the ages of which are well-known, ought to be able to settle this question.

A SHOWER OF MANNA.—"A correspondent of *La Nature*, says *Popular Science*, from Bagdad, describes a fall of 'Manna' that took place in 1890. A surface of about ten kilometres in circumference was visited. The nutritious substance was picked up by the people and made into bread, which had a pleasant taste and was easily digested. A specimen sent to *La Nature*, was in the form of spherules, about as large as millet-seed and agglutinated together, was yellowish on the outside and white within. It proved after a botanical examination, to be a lichen (Lecanora esculenta), which, according to Decaisne, is common in the arid mountainous regions of the Tartarian desert, where it lies on the ground scarcely distinguishable from the gravel. Parrot told in 1828 of a shower of it which fell in Persia, where it was collected by the people and greedily eaten by the cattle. The particles had probably been taken up by some whirlwind and separated from the accompanying sand while passing through the atmosphere."

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BULB GROWTH IN THE DOG-TOOTH VIOLET.—Prof. W. H. Seaman, Washington, D. C., says: "Referring to article on 'Root growth of the Erythronium,' page 83, last number of your MONTHLY, a Washington boy, Mr. Blodgett, of Rutgers, has worked out the whole problem about as you state it. See *Botanical Gazette*, vol. xix, page 61, with illustrations."

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FRUIT OF ROBINIA HISPIDA.—Recently this magazine noticed the rare instance of fruit of the rose acacia from North Carolina, through the instrumentality of Mr. H. R. Kelsey. Small and Heller, two good botanists, have also collected fruit on the summit of Table Rock Mountain, also in North Carolina.

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ROCK ELM.—"Rock Elm," says the *Northwest Lumberman*, "is taking the place of oak in many industries,"—but what is the Rock Elm? Judging from the locality it is probably the White Elm of New England, *Ulmus Americana*.

THE FORCE OF LIGHTNING.—Young people who see whole cars full of people pushed along at great speed by an electrical current passing along a light wire are often astonished at the intensity of such a force,—but the same great power is to be seen in a tree stricken by lightning as the expression is. On page 105 is a sketch of a white oak in which the wood and bark have been riven out as easily as we would peel an orange! When we remember how sharp the axe, and how sturdy has to be the axman before much impression can be made towards felling an oak tree, one can readily appreciate the intensity of the electric force. It has never been definitely settled whether electricity has a partiality for one tree over another. The writer believes he has seen trees of most species "struck" at some time or another. In this section, however, the Tulip tree or Liriodendron has many attacks in proportion to numbers.

There was a tree on the old Logan estate near Philadelphia, that was stricken annually for many years, yet living on till it became so light a shell as to blow off one day in a storm. Last summer a group of three tulip trees in the Meehan Nurseries, standing about six feet from each other, were each one stricken, the bark being riven in a thin line for many feet down the trunk to the ground, without any apparent injury to the trees.

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LARGE CHESTNUT TREES.—Questions occur, who has and where is the largest chestnut tree in America. Dr. Gordon W. Russell, of Hartford, Connecticut, reports one standing in the town of Mansfield, on the land of Mr. Whipple Green. It was pointed out to him by Mr. Nathan Starkweather. He visited it on the 27th of August, 1890. It is in an open pasture, about three-fourths of a mile east from Mansfield Station, perhaps fifty rods from the house of Mr. Green, and not far from the traveled road. A small brook runs a short distance from the tree. The circumference, measured as above described, is twenty-three feet three inches at four feet from the ground. It is heavily buttressed all around, and the trunk is apparently sound. Four large branches have been sent out; the lowest, ten feet from the ground, measured sixteen feet four inches in circumference, and extends towards the northeast. The circumference of the buttresses, or rather of their roots exposed above the ground, is fifty-four feet. Some of the large and high branches have been broken, the result probably of severe snow or ice-storms, so that it is not perfectly symmetrical. The diameter of the spread of the branches from the northeast to the southwest is eighty-three feet; and from the northwest to the southeast, one hundred feet. Mr. Starkweather estimates the height to be about eighty feet.

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LEAD-PENCIL WOOD.—Most persons know that the wood of the best lead pencils is from a form of the American red cedar. The best for the purpose is said to belong to the variety known as *Juniperus Virginiana*, variety *Bermudiana*. This form of red cedar seems to have its home on the Island of Bermuda, it being the only tree found on the Island. It is supposed originally to have been started from seed of our common red cedar, brought to the Island by birds, or in some other way, and that the continual force of circumstances, different from those under which our red cedar exists, has caused it to change in some respects its character. The same form is, however, now found in the South, possibly from seeds brought back again from Bermuda by birds, as in the first instance. It is said that Mr. Faber, whose name is inseparably connected with the best class of lead pencils, has growing on his estates at Schloss Stein, near Nuremberg, Germany, some 12 or 13 acres of this kind of cedar, from which he expects in the future to raise enough wood for his pencils, without importing it from the New World.

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EFFECT OF FROST ON CHEMICAL PRODUCTS.—The influence of frost in the production of sugar in the sap of the sugar maple is well known. It has also an influence on the astringent principle in fruit. This is illustrated in the case of the Persimmon, which puckery one day as to be beyond eating, will be sweet and delicious the day after, if exposed to frost. Another example recently occurred to the writer. It has been discovered that a species of dock known as Canaigre, is highly charged with tannic acid. Some roots which had been frozen were subjected to chemical analysis, and found to be utterly destitute of tannin. The manner in which frost acts to produce these changes has not attracted the attention of investigators.

DODECATHEON MEADIA.—Mr. S. W. Heinitsh, Lancaster, Pa., writes that the American cowslip, *Dodecatheon Meadia*, grows along the Conestoga Creek, and so abundantly on a hill a mile north of Lancaster, that the children go there when on "Maying" excursions to gather the flowers. The hill is generally known as Medea Hill, from the abundance of the plant there.

The name of the hill is interesting from the fact that it could only have been given by the famous Lancaster botanists of the early century, when the plant was called *Meadia* instead of Dodecatheon.

It may further be noted in reference to the reasons given for the discarding of the name by Linnæus, that all that is attempted in the chapters accompanying the plate, is to give some abstract of history as it is written. But history is not always just. "Index Kewensis," which has appeared since the chapter in "MEEHANS' MONTHLY" was written, gives 1751 as the date of Linnæus' name *Dodecatheon*, and 1752 as the date of Catesby's name of *Meadia*, so that he would be fully warranted in changing the latter name for *Dodecatheon* under the rules of priority.

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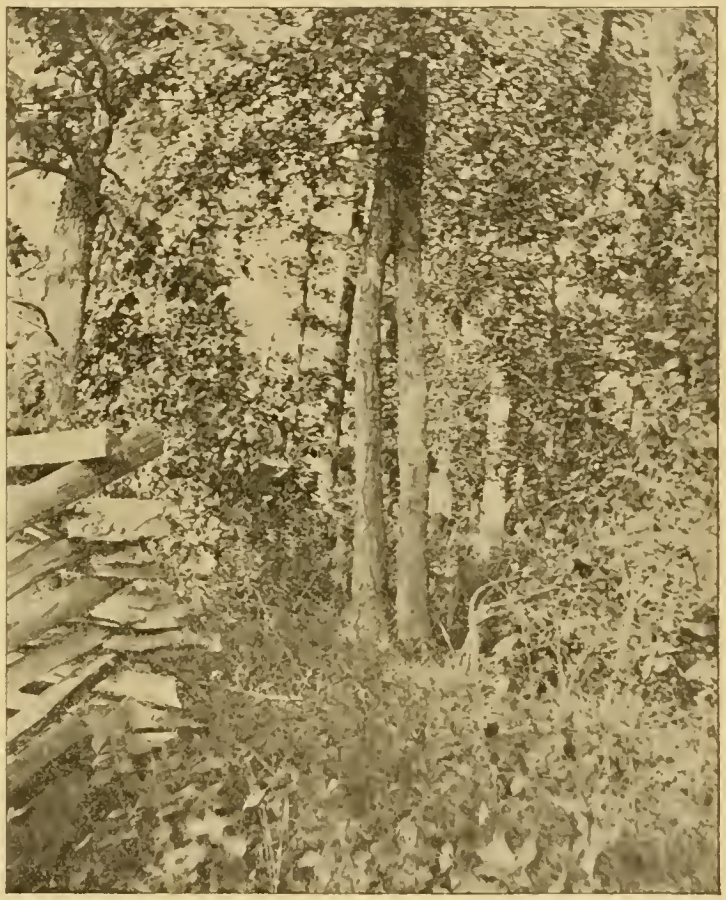
DOUBLE TRUNKED TREES.—Trees with double trunks, or branches with loops, are occasionally seen, and excite curiosity as to how the peculiar condition is brought about. They are cases of inarching. In the case illustrated, and for the sketch of which, by the way, MEEHANS' MONTHLY is indebted to the politeness of Mr. J. C. Roop, of Stroudsburg, Pa., the leading shoots were brought and kept by some means in close contact for a year, and the nunited. One of these points subsequently died, or there would be two leaders or trunks above the united portion. This must have taken place in the trees illustrated some years ago, as the rough line caused by two systems of bark growing over each other, reaches to nearly the top of the picture,—this rough-bark line coming down to about one-fourth of the distance from the ground. As these two trees are rather close, they will meet wholly in future years, and only this rough line of bark remain



A TREE WITH A TWIN TRUNK.

to indicate that the one trunk had a loop originally. This growing together of parts as the tree grows, and the persistency of the rough bark line, can be seen on any tree. Branches which were once free from the truuk, thicken. The trunk also thickens, and so branch and trunk come together,—but we can always tell which was which by the rough bark line, which takes an inverted V shape under each branch of the tree.

SARGASSA WEED.—When Columbus was crossing the Atlantic he found islands of a peculiar sea weed floating in that part of the ocean since known as the Sargassa Sea. It had never been known before, and was supposed to be born and developed floating on the ocean's surface. It is only in comparatively recent times that its home has been traced to deep water in the West Indies. It becomes detached and floats away with the Gulf current towards the Arctic seas. It is often called Gulf-weed, from the location where found. It is often so dense that a vessel can scarcely get through it. The fronds are very slender, two or three inches long, and not more than two lines wide, armed with straight teeth like the projection from the upper jaw of the sword fish. Some one hundred and fifty species have been described by algologists. Annexed is a very pretty species, *Sargassum subrepandum*, taken from an admirable work by Prof. K. Goebel of Munich, called "Phlanzenbiologische Schilderangen." The common and best known one, which so troubled Columbus, is *Sargassum baccíferum*. The grape-like air vessels, serve as floats.

SARGASSUM REPANDUM.

VARIATION IN THE ODORS OF FLOWERS.—A matter that has not attracted the attention of vegetable biologists to any serious extent, is the variable character of the odors of flowers. It has been noticed that mignonette when growing in our gardens is sweeter at times than at others,—and it is being brought out by the correspondents of MEEHANS' MONTHLY, that the common wood honeysuckle, *Azalea nudiflora*, certainly scentless as a general thing, is often quite fragrant. Of this latter point Mr. W. F. Bassett, of Hammonton, New Jersey, remarks:

"If it is generally understood that the white swamp azalea is the only fragrant one, the general understanding is in error. *Azalea nudiflora* in Massachusetts is as sweet as the common garden pink and the fragrance is nearly the same. It seems a little singular that they should be generally destitute of fragrance in the Middle States. Has climate anything to do with it, or is it the result of natural selection and evolution of different specimens in the different localities? We have just received Luther Burbank's list of New Creations in Fruits, and note that he offers a new calla especially because it is fragrant, and remarks that the common calla has no fragrance except occasionally an odor of muriatic acid or mushrooms. I had supposed the common calla to be one of our sweetest scented flowers and that its odor is peculiarly delicate. Is it possible that open air culture or the climate and soil of California have changed it?"

Mr. Harlan P. Kelsey, of Kawana, (his new post office) remarks on the sweet odor of *Azalea arborescens* of the mountains of North Carolina,—while Mr. Willard N. Clute, of Binghamton, New York, observes that in that locality, the common *Azalea nudiflora*, so often scentless, "perfumes the whole wood."

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RHODODENDRON AND AZALEA. — The confusion arising from the continual changing of plant names in order to carry out the law of priority to its rigid extent, may be illustrated in the case of *Rhododendron* and *Azalea*, though the reason for dropping one is not the same. Because some of the characters employed by the earlier botanists to distinguish these are not found reliable, *Azalea* has been dropped. But to the great gardening public an *Azalea* will always be an *Azalea*, and a *Rhododendron* a *Rhododendron*. Some first-class nurseries have, however, followed botanists and sold "*Rhododendrons*" for *Azaleas* ordered, and have got themselves into a whole peck of trouble.

# GENERAL GARDENING.

## FERTILIZATION OF FLOWERS.

"These have their sexes, and, when summer shines,
The bee transports the fertilizing meal
From flower to flower, and e'en the breathing air
Wafts the rich prize to its appropriate use."

COWPER.

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THE ECHINOPS.—One of the most striking ornaments of a large park or garden, can be formed out of groups of plants of the genus *Echinops*. They have a thistle-like appearance; but have very little relation, actually, to the thistle family. In almost all composite flowers, such as the dandelion or daisy, the heads are made up of a large number of small florets, but in the Echinops every floret forms a distinct flower, with its own separate set of involucral scales. We have known some botanists to be puzzled by their first examination of a head of flowers of this class. The flowers have a bluish-white tint, although not showy, still on the whole, as noted, will make a striking object when grown in a mass. There are some half a dozen species, natives of the Old World, and one of them has been introduced into general cultivation, by a gentleman by the name of Chapman, as a honey plant. Undoubtedly bees are extremely fond of the flowers. They throng around the heads when the plant is in bloom, and work so industriously about them, as if they had but a moment to live. Another advantage is that the flowers continue to produce heads successively for nearly a month, and in this respect have a great advantage over many plants that are visited by bees, which produce a number of flowers at once, and in a week or so the blooming season is entirely over.

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SUCCESSION OF FLOWERS IN AZALEAS.—By a selection of the different species of *Azalea* some one or another may be had in bloom for a long time, with the advent of spring. The various forms of *Azalea pontica*, known in gardens as the Ghent azalea, from the fact that the greater number of varieties have been produced in Belgium, are in full bloom before the leaves have scarcely expanded. These give us a good show during the earlier part of May; towards the end of May and early part of June, we have the azalea of North Carolina, *Azalea calendulacea*, and these have scarcely begun to fade before the sweet white azalea, of the New England States, *Azalea viscosa*, takes its place at ornamenting our gardens. In this way we have azaleas from the early part of May to the end of June, which is a good long season for any one class of plants to do good service. All these azaleas are very easily grown on any soil that is not clayey or stiff; broken stones, gravel or sand, or even clay, where there is a large portion of sand mixed with it, so that the fine little rootlets can have a chance to spread fairly well, will grow azaleas; in fact, anywhere except where the land is so clayey as to bake under dry weather, these beautful plants will grow to perfection.

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TIMBER CULTURE.—A Kentucky correspondent has three acres of black walnut, planted from nuts some six years ago, in marked out rows, as if for corn, four feet apart. As they will naturally be too thick for permanent forest, he inquires if every other one could be transplanted. It would probably be better to sow another lot in eight-feet squares.

It has never been decided in American forestry what is the best width to make the original planting. European works recommend to plant thickly, and make profit out of the thinnings. But this will not do in America. The removal of the "brush" from the thinnings would be costly,—and to leave it rot, furnishes food for forest fires. On the other haud, if set too wide apart, the side branches grow too strong, and the trunk furnishes timber too knotty. What is just the medium distance to plant so that thinning shall not be required, and yet have the trunk grow tall and straight, with few strong side branches to make knots? Does anybody know?

AZALEA AMOENA.—The Belgium horticultural journals state that in that country the *Azalea amœna* is as highly appreciated as it is in this country. It is a very distinct species from the ordinary Chinese azalea, the leaves being very small and somewhat leathery. The bright rose-colored flowers, are also not half the size of the ordinary azalea, and these are produced in such immense quantities that frequently scarcely a leaf can be seen. For bordering the larger growing kinds of azalea, it is incomparable. The original species, from which the one in cultivation was obtained, does not seem to have been introduced from China. The one we have has the ordinary green calyx turned into a corolla, so that the flower presents the singular appearance of one flower being pressed into another, just as one teacup would be occasionally fitted into another teacup. The Belgium papers especially praise its hardiness, stating that it has never been injured there in the most prolonged or severe winter, and this is the American experience, where probably the unfavorable circumstances have been more severe than even in Belgium.

ARAUCARIA IMBRICATA.—There appeared an inquiry in MEEHANS' MONTHLY, as to whether there is any good specimen of the Chili pine in the United States,—in reference to this Mr. W. F. Bassett, of Hammonton, N. J., says:

"A specimen of this tree was planted in the front yard of a place in Hammonton, probably twenty years ago, and lived without protection until the very severe winter of 1892–3, which finished it. It got one set-back in a previous severe winter, from which it recovered, but it never got much above two feet in height. The soil in which it grew was extremely sandy."

And Miss Pinckney kindly informs us that a year ago there were some half a dozen vigorous specimens of the Chili pine on the estate of Mr. Vanderbilt, at Asheville, N. C. They were about ten feet high. They ought to do well there, as no place in America would be so nearly like their own home.

MAGNOLIA CONSPICUA.—On account of its early flowering and sweet odor, this is one of the most popular of all magnolias. In England it doesn't seem to thrive as well as in America, the summers of that region not seeming to be sufficient to properly ripen its wood. Even in comparatively mild climates, they have to plant against high walls or buildings, in order to get the additional summer heat for this purpose. Foreigners are, therefore, surprised when they come to America and find trees 50 or 60 feet high covered with thousands of its large white, cup-like blossoms. It is one of the earliest to bloom, coming out before the winter is scarcely over; in fact, not unfrequently blossoms are destroyed by late frost. Although a tree, it has the advantage of flowering quite young; two or three year old plants frequently bearing one or two blossoms. Some people object to having a tree covered with bloom without any leaves, and criticize it as unnatural, but for all this, it is generally popular in spite of these criticisms.

HOLLYHOCKS.—For a number of years the hollyhock was troubled with a small fungus, which destroyed the leaves before the flowers opened. This fungus was known as *Puccinia malvacearum*. So destructive was the fungus that the plants were destroyed before the flowers matured; on account of this they nearly disappeared from cultivation. Since that time, plants having been introduced free from the disease, the plants have become comparatively healthy, and now form very prominent objects in gardens of taste. Very often they die after flowering, especially if the plants are not very healthy. It is wise to cut off the flowers before they attempt to produce seed. When this is attended to, the hollyhock will last in perfect health for a number of years.

PREPARATIONS AGAINST INSECTS AND PARASITIC FUNGUSES.—The ease with which injurious insects can now be overcome by various solutions and powders, renders amateur gardening much more of a pleasure than formerly. Still there is great room for progress in many respects. It is often more of a trouble to get the preparation ready than to apply it. Water heated to 130°, for instance, is a certain destruction to insects, — but few have patience to get the water, and keep the thermometer steady just at that degree. Those who labor to have preparations just ready to apply at any moment are good friends to the present plant grower. It is a pleasure to note that good things in this line are from time to time being offered.

INTERCULTURE.—One of the merits claimed for keeping orchards in grass in warm latitudes is that it tends to keep the soil cool,—the grassy surface preventing the hot rays of the sun from absorbing the moisture from the soil. In many cases it is not so much the atmospheric warmth which is against the success of those kinds of fruits and vegetables which naturally come from a northern climate, as it is the warmth of the ground. It is an admirable lesson in gardening, to bury a thermometer six or seven inches in ground which is exposed to the summer sun. The heat will often be found very much higher than the atmospheric heat. Good cultivators in warm climates have therefore found a great benefit from growing trailing plants along with crops which require some distances apart for each plant. In the South the cow-pea, a species of *Phaseolus* is employed for this purpose. In the North it is not unusual to have pumpkin planted among corn in this way, and it has frequently been stated that one can get just as large a crop of corn when a crop of pumpkins is also taken from the ground as from the corn alone. In California the pumpkin is also useful to plant among the orchards of apricots, plums and similar fruits. The trees are found to be healthier and more productive by having the surface shade which the leaves of the pumpkins afford. This department of double cropping has not received nearly the attention from advanced cultivators which it deserves.

AN OAK SHIVERED BY LIGHTNING.—SEE PAGE 100.

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THE ENGLISH BINDWEED.—People who talk of the trouble they have with Canada thistle, would find it a pastime to try to get rid of it, as compared with the English bindwood, *Convolvulus arvensis*. The underground roots or stems are not much thicker than knitting needles, and they penetrate far and wide into the earth; every little piece, though not exceeding a quarter of an inch, will grow so that often the fight to destroy it only tends to disseminate it the more abundantly. It is spreading rapidly over the whole country. We note that Prof. Hilgard speaks of its introduction into California. The writer of this had it once introduced extensively into his nursery with foreign importations. It was not noticed at first, and it spread so as to be in considerable profusion over nearly an acre of ground. The remedy was to set a boy with a small hand fork to dig up the plants as soon as the leaves could be well recognized above the ground. It is a well-known principle in garden botany that no roots can live if deprived of healthy leaves. The digging, therefore, had to be done before the young plants made fully expanded foliage. After having gone over the tract in this way, some few more appeared about midsummer; the boys were again set to work to take them out as before. The year following only a few here and there appeared; these were taken out as before, and the whole of this tract was thus entirely cleared of the pest during the second year. Many suppose this hand weeding business is very expensive, but we are quite sure the total cost of weeding out these plants did not exceed $10. These tasks of weeding out pestiferous plants before the foliage has gained much headway, is easier than is supposed.

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CUT WILD FLOWERS.—The general markets of Philadelphia were stocked with cut wild flowers to an unprecedented extent this season. Anything that is pretty was brought in, and found ready purchasers.

FUNGICIDES.—One of the most valuable discoveries in modern gardening is the fact that there are appliances that will destroy fungus vegetation without any injury to vegetation of higher organization. Until comparatively recent times, sulphurous acid was the only dependence of the cultivator; but this had only a local and limited application. The farmer then discovered that when grain was steeped in copperas water, there was no injury to the seed, and the wheat which followed was wholly free from smut. It was easy to travel from this point to the Bordeaux mixture, and other solutions of copper, and the general application of spraying which has followed. At present the line of thought is in the discovery of cheapening and rendering less laborious the application of these solutions. A good step in advance is in the employment of ammoniacal solutions in connection with the copper. In about 45 gallons of water, three pints of concentrated ammonia and five ounces of copper carbonate are dissolved. The cost is less than one dollar a gallon.

VIRGILIA LUTEA.—Mr. G. H. Cocklin, Bowmansdale, Cumberland County, Pa., writes that a small tree of *Virgilia lutea*, or as it is properly *Cladrastis tinctoria*, planted thirty years ago, is now 52 inches in circumference 4 feet from the ground. Its magnificent head, with its abundant racemes of white, wistaria-like blossoms, looked charming at the end of May.

This is possibly as fine a tree as many can show, though the original ones brought from Kentucky presumably by the early botanical collector Kin to Germantown, are naturally much larger.

FERNS AS WEEDS.—It is singular to note the different classes of weeds which trouble the cultivator in different parts of the globe. Plants entirely innocent in some quarters are considered grave transgressors in others. In Oregon, for instance, one of the greatest troubles of the farmer and fruit grower is to get rid of different species of ferns; the worst species being probably the Bracken of North of England—*Pteris aquilina*—which the writer has seen in the northwest covering many an acre, and standing as thick as a crop of wheat. It is said that ploughing and harrowing, although continued for a couple of years, will not destroy it. The best way to get rid of it, it is said, is by sowing the land with clover, and then mowing the clover twice during the season.

CHILDREN'S PLAY-GROUNDS IN PUBLIC PARKS.—A correspondent claims that whatever may be the oversight in eastern public parks, in providing special places as play grounds for children, San Francisco cannot be classed in that list. The Golden Gate Park has set apart special quarters for that purpose. They have sheltered places, resting places, retiring places, lunch rooms, spaces for goat and donkey riding and merry-go-rounds; all are situated in a warm and protected valley, and surrounded by lawns and beautiful flower-beds. This portion of this beautiful park is among the most popular of its attractions; numbers of visitors to the Park going to this particular spot, as lookers-on, enjoying the happiness which the children in their frolicsome play present.

WEEDS AS ORNAMENTS.—No plant is a weed except when growing where the cultivator does not want it to grow. It is surprising how beautiful the rankest weed may become in our eyes when it fills a spot that requires filling. What is more despised than the common burdock? Passing an unoccupied house with its little 20 x 20 grass plot in front, with no tender fingers to weed the garden, a burdock had possession of the centre. The yellow celandine, some stray branches of honeysuckle, and other homely things had grown among and over the leaves. It was a charming sight.

THE DROOPING GOLDEN BELL.—Mr. G. S. Conover notes that *Forsythia suspensa*, the drooping golden bell, does admirably trained up as a climber. The common golden bell, *Forsythia viridissima*, which makes a stiff upright bush, and is so great an ornament of our gardens in spring, is but an infertile form of *F. viridissima*.

FOOD OF THE CUCKOO.—Mr. W. F. Bassett, Hammonton, New Jersey, has seen the cuckoo feeding voraciously on the tent-caterpillar. Professor Smith, of the New Jersey State College, regards it as wholly insectivorous and one of the cultivator's best bird friends.

FUNGICIDES.—Much is made of the supposed modern discovery that copper sulphate is destructive of most kinds of mildews and moulds which are so injurious to vegetation, and yet the use of copperas in destroying fungi, as stated in another column, has been known to every intelligent farmer for many years past. Smut, of the wheat and other kinds of grain, which is a manifestation of one of the lower forms of fungi, has been prevented by simply soaking the seed before sowing, in a solution of one pound of commercial copper sulphate, to 24 pounds of water, soaking the grain for about 24 hours before sowing. It is now thoroughly understood that the germs of many of these species of minute organisms travel with the seed, and enter the system of the plant while the seed is growing, going through the whole circulation and germinating in the leaves and young branches. Many of the California coniferæ, carry their special funguses along with them in this manner. The mammoth Sequoia, especially, carries a species not found on any other, and it is chiefly on account of the presence of this fungus that it is impossible, with but a few exceptional cases, to cultivate the tree successfully in eastern gardens. It is more than likely if the same treatment was applied to it as is applied to grain, by steeping the seeds in a copper solution, this great enemy of the grower of coniferæ might be eventually conquered.

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TRADE IN FLOWERS.—The flower perfume trade, which has reached immense proportions in the Old World, has very little attention in the New World. It is said that in the vicinity of Nice alone, the value of the product of flowers for perfume, and for seed raising for large wholesale establishments, reaches the equal of about two millions of dollars in American money a year. The larger portion goes for distilling perfumes, although much attention is given to raising specialties in the flower line for seedsmen,—one tract of 35 acres alone is said to be given up by one party to raising seeds of the Chinese primrose. The chief flowers raised, however, are for perfumes, and consist chiefly of orange flowers, rose petals, jasmines, peppermint and lavender. Violet flowers are also raised largely for perfumery purposes.

## FRUITS AND VEGETABLES.

NEW VARIETIES OF FRUITS AND VEGETABLES.—Almost all leading agricultural and horticultural periodicals have the pages filled with descriptions of new varieties of fruits and vegetables,— a large majority of which, after being tested, prove to be of no more value than those which they superseded. It may be wondered whether this branch of horticultural literature is a benefit or disadvantage. Certainly in the very large number of classes of fruits and vegetables, varieties popular to-day are no better, if as good, as varieties that were in vogue a half century ago. This is particularly the case with the strawberry. Certainly, the proportion of large and high flavored fruit seen in our markets is far less than it has been in former times. One could go into a garden and gather fruit, eating it with a relish directly from the vines; in these times one would scarcely think of eating them unless heavily smothered in sugar and cream. The only thing to be said in favor of this influx of new kinds is that in some unexplained way—though possibly from unnatural systems of cultivation—varieties degenerate, and other varieties have to be introduced. Not so much, perhaps, to improve the kind, as to make up for the degeneration which has been experienced. As a vital principle of vegetation there is no such thing as a degeneration of varieties. If left to nature, or even under systems of cultivation, there is no evidence that a variety would ever wear out; but as a living fact, within the experience of every one engaged in fruit and vegetable culture, varieties certainly do wear out, and very often wear out much more rapidly than the cultivators find profitable.

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CARE OF CURRANT BUSHES.—Currant bushes often seem to have a much weaker growth than should be natural to them. When such weakened branches are cut across they will often be found hollow from the work of the currant stem-borer. Before winter comes the larva crawls out and goes into the earth to undergo its transformation. If the affected branches be cut away and burned early in autumn, the larvæ are destroyed. The puncture on the stem where the egg was deposited, can easily be detected.

THE CANKER WORM.—This insect, which is so destructive to the apple orchards in the New England States, seems to be getting conquered by the use of so many of the weak poisons which are now becoming popular and which it is found can be successfully used when in the hands of careful persons, without the slightest injury to any one. Mr. L. H. Farlow, of Boston, Mass., who has been troubled in the past to an alarming extent with the canker worm, made last year a concoction of one pound of London purple, reduced in 150 gallons of water, and had the trees sprayed with a fine nozzle. The worms had already spoilt part of his orchard before he began. The insects were entirely destroyed and the trees that were saved afterwards brought the finest specimens of apples that he had ever seen,—the fruit being extra large and free from worms and fungus. It is becoming more and more clearly demonstrated that the easy way of growing fruit in America, which our forefathers experienced, has had its day. All that was necessary in the olden times, was to plant the tree and leave the rest to nature; but the different kinds of fungus diseases and injurious insects have so spread that we not only have to gain our bread by the sweat of our brows, but to get our fruits also in the same way; and yet the very little extra labor required to procure good fruit would insure us having an abundant supply for all time to come. It will soon be that it is only the lazy and neglectful that will have much to say about losses from insects and fungus.

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A FRUIT-GROWER'S FRIEND.—A prominent writer contends that the curculio, as the little beetle which is so great an enemy to the plum grower is called, is really a friend rather than an enemy, because it keeps down an over-supply of fruit, and in this way enables the intelligent and industrious fruit grower to make a good profit out of a crop that would otherwise be scarcely worth attention. To a great extent this is true. The plum is so abundant a bearer, that before the curculio spread so extensively over the country, they were scarcely worth taking to market, and only when they were cut and dried by women and children, was there much of a margin for profit. When, however, the insect became so abundant, the fruit crops everywhere were destroyed. It was rare that one saw a plum in the market. But as soon as the Geneva fruit growers, mainly under the leadership of Mr. S. B. Willard, undertook to protect their trees by the shaking process, crops began again to be produced, and the plum became a common article in fruit markets. The insect is kept down by jarring the trees suddenly with a pole protected at the ends so as not to break or bruise the branches. Where orchards are planted on a scale extensive enough to make it worth while to employ persons regularly to do this work, very large crops may be obtained, and, of course, with the comparative scarcity in the market, good prices result. Certainly, in this sense, the insect has proved to be the fruit grower's friend; but the fruit grower whom he befriends, is not the lazy one, but the one who is willing to believe that all good things must come from the sweat of one's brow.

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LARGE STRAWBERRIES.—In some back numbers of MEEHANS' MONTHLY, paragraphs have appeared in reference to the largest size the strawberry has been known to reach in America. A correspondent of the London *Journal of Horticulture* states that the largest strawberry on record in that part of the world, was 10 inches in circumference, its greatest diameter 2¾ inches, and the weight rather more than three ounces. It should be stated, however, that the strawberry was flat, as one may judge by the weight. We fancy that a perfectly round strawberry, with the above diameter, has never been seen.

In response to an inquiry in MEEHANS' MONTHLY as to the largest strawberry in our country, Mr. Lunzer informs us that he made a drawing of some for Mr. E. W. Reid, of Bridgeport, Ohio, last season, that were round and 2½ inches in diameter. This would be 7½ inches in circumference, and ought to satisfy any one that large strawberries are not yet things of the past; and on the whole probably beating the English ones.

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GROWING FILBERTS FOR PROFIT.—A correspondent from Montreal, asks whether filbert culture could be made profitable in Nova Scotia, and what would be the principal requirements. Without knowing of any experiment in that part of the world to test the matter, there would seem to be no reason why it

should not be entirely profitable, far more so than in latitudes further south. The chief difficulty in southern latitudes arises from the fact that it takes a less degree of heat to bring out the male blossoms than it does the female blossoms; and in early spring the male catkins mature and scatter their pollen while the female flowers are still in the bud. These female blossoms remain closed until the spring has set in, and when they open find no pollen to fertilize them, and as a consequence no nuts result. In more northern regions where the winters are continuously cold until the spring time comes, this does not occur. The male and female plants open together, and in this way the full crop is insured. It would be well, however, in these more northern latitudes to have a large number of plants growing together. This is all that can be said as a matter of suggestion; but it would seem from these principles, to be entirely practicable to have filbert culture made a great success.

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Curious Behavior of Turnip Seed.—Mr. S. S. Thomas, of Lynn, Susquehanna County, Pa., states that a quantity of turnip seed, evidently of considerable age, was found in an old store. It was marked purple top, strap-leaved turnip. After testing, it was found to have germinating power. Possibly twenty persons sowed some of it. Strange to say in no case did the crop result in a turnip, nothing but a long slender stalk pushing up into blossom, and a straight downward root not larger than a knitting-needle. Our correspondent seems to be under the impression that this inability to form a proper turnip root, is in some way connected with the age of the seed. It would indeed be a matter of great interest if this fact could be proved; but there still remains the possibility that it was rape seed and not turnip seed, and that it had been erroneously marked in the first place. It would, however, be worth while to note when old seed of any kind is planted whether any variation from the original type occurs from that fact.

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Dewberries. — While the blackberry has been improved remarkably of late years, very little attention has been given to the dewberry, although a variety of blackberry once extremely popular, called Wilson's Early, was suspected to be a hybrid between the blackberry and the dewberry. A variety, however, called the Lucretia, is considered a very good dewberry. The chief value of this class lies in its earliness. Those who grow Lucretia for market, however, do not find it very profitable, as dewberries have to be supported on stakes; while blackberries are usually stiff enough to be self-supporting. For the amateur, however, who does not care so much for the little time taken in the cultivation of his fruit, so long as he has something superior, the dewberry is a very good fruit to grow.

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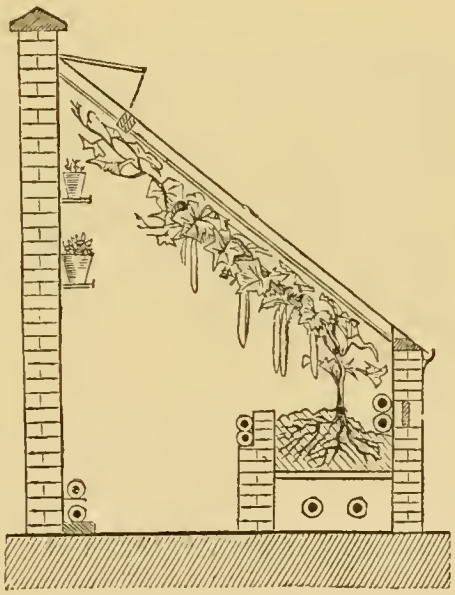
A Winter Cucumber House.—Few adjuncts to a nice garden will compare in interest with a cucumber house. A house for roses, carnations, or for any other specialties may give pleasure; but a cucumber house, with its large yellow flowers, tropical-looking foliage, and long glossy fruit, will fully compare with it. And then the kitchen folks can join in,—for there is utility as well as beauty in culture of this kind. Appended is a sketch from *Gardening Illustrated*, showing how such a house is constructed in the Old World. Hot water pipes are employed for heating in small houses, though steam pipes, so common now in large American establishments, would do as well.



# BIOGRAPHY AND LITERATURE.

## THE DIOSCURI.

The Persian roses shower upon his tomb
Their dawn-tinged leaves, in memory of Khayyám—
A flush of beauty and an orient balm—
From crimson censers shedding rich perfume.
As English roses now anew they bloom;—
For a twin-bard, amid the rural calm,
With wine-red roses crowned—the minstrel's palm—
Sweeter, their Asian fragrance they resume.
Revolving round one centre, each twin-star
That glows alternate, with a different light,
Yet equal splendour,—but that doth not mar,
Ontshining,—makes the kindred orb more bright.
These twain shall thus together beam afar
With mingled rays down time's slow-deepening night.

HOWARD WORCESTER GILBERT.

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MISS WILKINSON, THE LADY LANDSCAPE GARDENER.—A friend of Miss Wilkinson writes that this lady is naturally interested in the attention which MEEHANS' MONTHLY has in America directed to her successful efforts in this field hitherto unoccupied by any lady in the Old World. She writes to this friend: "I know our Park and Garden Association has many correspondents in the States, but I did not think my fame would have traveled so far. I am very much interested in my work, and have as much as I care for."

Our correspondent says that Miss Wilkinson's grandfather was George Walker, of Longford, near Homesburg, an English farmer, who about 1830 had some fame as an instructor of young men in advanced agriculture, and her mother, Mrs. Wilkinson—born Walker—was remarkable for her endeavors that her children should lead useful lives. The mother therefore must have part of the credit due to the admirable lesson of usefulness which the daughter's example is teaching.

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TITIAN AND LANDSCAPE.—In relation to the point whether Titian had eminence in landscape as well as figure painting, Prof. E. J. Hill says:

"If it is permissible to correct a correction, as it must be where truth is the aim, it may be said that the allusion to Titian in the article on the 'Gardens of the Greeks' was eminently proper. Though preeminent as a painter of figures, Titian excelled in landscape also. Lanzi, one of the best authorities on Italian art, in his 'History of Painting in Italy,' says of him: 'I shall avail myself of the judgment of an excellent critic, who was accustomed to say, that Titian observed and drew nature in all her truth, better than any other artist.' To this I might add the testimony of another, that of all painters he was most familiar with nature in all her forms; the universal master who, in every subject he undertook, whether figures, elements, landscape, or other pieces, imprinted upon all that lively nature constituting the charm of his genius. 'He was equalled by none in his landscape; and he was careful not to employ it, like some artists, as a mere embellishment.' Titian made landscape subservient to history and to the object he had in view when used in his figure paintings, so that the chief beauty of the 'Venus del Pardo,' an injured picture of his now in the Louvre, lies in the landscape."—And our friend says in response:

"I went to the Philadelphia Library and consulted the 'Encyclopedia of Painters and Paintings.' Under Titian it gives a long list of his paintings—only two of them are landscapes. He made his reputation in his pictures of the human figure, and his wonderful coloring. Therefore Prof. Hill is right, in strictness of speech, that he was both a landscape and a figure painter; but I was right, essentially, as he is so nearly altogether a figure painter. He is known only as a figure painter."

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PROF. C. V. RILEY.—Prof. C. V. Riley has resigned his position as entomologist of the United States Department of Agriculture on the grouud of impaired health. He remains one of the honorary curators of United States National Museum, in which connection he hopes to do some long contemplated entomological work he could not devote himself to while in public office.

OMAR KHAYYAM.—It is said that few poets excel in all that constitutes poetic genius like the Persian Omar Khayyam,—and those who have read the translation of his "Rubaiyat," by Edward Fitzgerald, will appreciate the justice of this claim. And of the translator, Fitzgerald, it may be said that it requires a great poet to successfully translate another, especially from a difficult Oriental language; and the honors paid to Fitzgerald are almost as great as those to Omar Khayyam himself. Recently rose plants from the Persian poet's grave have been planted on the grave of Fitzgerald, and for the occasion the following singularly appropriate and beautiful lines were prepared by another great poet, or rather poetess, Edwina Booth:

"Here, on Fitzgerald's grave from Omar's tomb,
To lay fit tribute, pilgrim singers flock;
Long, with a double fragrance, let it bloom,
This rose of Iran on an English stock."

It is rare that such a succession of pretty thoughts grow out of and follow each other so freely as in this case.

It was a happy thought to bring roses from the grave of the great Persian poet, Omar Khayyam, and plant them in England on the grave of his scarcely less great translator. It is a worthy theme for the beautiful original poem given to-day by Mr. H. W. Gilbert.

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THE FLORAL EMBLEM OF UTAH.—Attempts to select National or State flowers usually fail, because such State flowers cannot be merely selected, but must have some relation to some famous State or National event. In other words State flowers have to grow and cannot be made any more than the natural flowers themselves. The emblem of Utah, the Sego, or *Calochortus Nuttaltii*, will probably stand as that State floral emblem, as it is associated with the struggles of the little band which founded Salt Lake City, and subsequently the Territory or State. Mrs. Emiline B. Wells, editress of the *Woman's Exponent*, gives this as the reason for the honor the flower has received. President Wilford Woodruff, has recently stated to an interviewer, that the original party of 150 men and three women halted in their march of 1848, where Salt Lake City now stands, from sheer lack of food. Sego roots, roasted grasshoppers and the water of City Creek chiefly kept them alive until they could get something from the ground. Mr. Woodruff was one of the first settlers to look to the ground about them for support. He planted the first orchards and gathered the first fruits. It was a fair struggle of mind over wild nature, as the alkali had to be washed out of the earth, before crops would grow.

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BIOGRAPHY OF BALDWIN.—Dr. Fred. Brendel, Peoria, Ills., kindly sends us the following corrections:

In the MONTHLY of June, p. 95, is a historical error. Baldwin was the botanist of the *first* expedition of Major Long to the *Rocky Mountains* (not Mississippi), 1819 and 1820.

Long's *second* expedition was that to the sources of the *St. Peter's* (Minnesota) river, Lake Winnepeg, etc., in 1823, four years after Baldwin's death.

The *first* expedition to the sources of the *Mississippi* was commanded by Cass, in 1820, described by Schoolcraft.

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FRUIT CULTURE IN THE UNITED STATES.—Nothing excites the wonder of intelligent Europeans more than the extent to which fruit culture has been developed in America. Mr. Felix Sahut, of Montpellier, has issued a reprint of an exhaustive paper on "La Culture Fruitière aux États Unis," which appeared originally in the annals of the Natural History Society of Heinault, in which this feature of our industries is graphically but justly described.

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THE BLASHKA GLASS FLOWER MODELS AT HARVARD.—The "Botanical Gazette" gives in vol. xix, page 145, a graphic account of the models of flowers in glass, as recently described in MEEHANS' MONTHLY. Mr. Walter Deane, the author of the account, says that in the most complicated flower the minutest details are given. He regards the care and accuracy of the work as marvellous.

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PATRICK BARRY.—Mr. P. C. Reynolds is preparing a succinct biography of the late Patrick Barry, for private circulation among friends. Possibly no one did more for the present eminent position of American fruit culture, and gardening in general, than Mr. Barry, and every tribute to his memory meets a general welcome.

# GENERAL NOTES.

FOREST FIRES.—It is said that in Boston the recent great fire was caused by some boys starting a bon-fire among a lot of rubbish that was left lying under a base-ball stand. Boston should take a hint from some of our forestry conventions, and ask the Legislature for a corps of paid inspectors to notice rubbish piles and arrest boys likely to start rubbish fires. Inspectors are being asked for everything, and soon one-half our population will be employed inspecting the other half.

TO MEEHANS' MONTHLY it has always seemed more reasonable to have a force of hard-working men to collect and burn the dead underbrush in dangerous localities, than to leave it exposed for boys to burn, and to go further and fine those who leave such dangerous material lying loose around rather than those who fire it—usually by accident. Thousands of acres could be thus rendered comparatively safe at a less cost than to employ mere watchers. But it is less respectable to work than to watch.

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CURVING OF OLD TRUNKS OF TREES.—The curious subject of the curving of the mature trunks of trees, when these trunks blow over, recently brought to prominent notice by an illustrated article in MEEHANS' MONTHLY, is receiving marked attention. Hon. J. Sterling Morton, United States Secretary of Agriculture, and the founder of Arbor Day, writes that on his grounds at "Arbor Lodge," in Nebraska, are some curious illustrations of the fact.

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TRENTON FALLS, NEW YORK.—The tired citizen seeks the country for a summer rest. Some care only for social pleasures, and often return to active city life more tired than when they went away to rest. The more sensible do not ignore social enjoyments, but look for additional quiet pleasure in which even activity means rest. Natural history pursuits, are chief among these. They are the most restful of all active pleasure. Trenton Falls is one of the best of these pillows of rest. With the best society there is a rare chance for the botanist, geologist, palæontologist, ornithologist, and the physical geographer. A little pamphlet on our table issued by the Moores of that place, leads us to say this good word for the benefit of those who in "the love of nature" desire to "hold communion" with her many lovely forms; and rest at the same time.

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CLASSIFICATION OF AMERICAN SPECIES OF ASH. — An intelligent reader of MEEHANS' MONTHLY does not believe the Belgian botanist referred to recently as attempting a new classification of the Ashes knows as much about it as he might. Nor do we. The paragraph was given as news. American ashes need some new definitions,—but the proposed arrangements do not mend matters.

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THE LOVE OF NATURE IN THE PUBLIC SCHOOLS. — Mrs. Franklin Fairbanks, of St. Johnsbury, Vt., offers a premium to the boys and girls of the public schools of that city,—one, a $5 gold piece, for the largest collection of over 25 different varieties of wild flowers found in the vicinity, and $2.50 for the second best collection. The collections are to be brought to the City Museum by July 31st, where the decision is to be made.

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DECORATIVE PLANTS.—Prof. W. Trelease, the chairman of a sub-committee of American florists would be glad to receive three copies each of any catalogues of decorative plants issued during the past year, so that an official list of kinds may be prepared.

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PENTSTEMON COBÆA.—The large and beautiful family of *Pentstemon* will furnish the subject for our next colored plate,—*P. Cobæa* being chosen for the honor. The encomiums bestowed on these plates and the popular descriptions, by so many friends while renewing their subscriptions, are very gratifying to the publishers. They hope it is a pardonable pride.

# PENTSTEMON COBÆA.

## COBÆA—BEARD-TONGUE.

### NATURAL ORDER, SCROPHULARIACEÆ.

PENTSTEMON COBÆA, NUTTALL.—Soft puberulent; leaves ovate or oblong, or the lower broadly lanceolate and the upper subcordate-clasping, two to four inches long; corolla abruptly campanulate, ventricose above the narrow tube, from dull reddish purple to whitish, glabrous within; slender sterile filament, sparsely bearded. (Gray's *Synoptical Flora of North America.*)

The genus *Pentstemon* exists only in the New World, and in the United States seems to be most at home in the Rocky Mountains, or territory contiguous thereto; east or west of this their numbers decrease. In the Atlantic portion of the United States it is represented almost alone in *Pentstemon pubescens*, the first known species on which the genus was first founded by Dr. Mitchell, in 1739,—he publishing the name as Penstemon, the correct orthography, Pentstemon, appearing in the later editions of Linnæus' "Species Plantarum." The name was suggested by the appearance of a fifth stamen, while so many of its congeners have but four. This fifth stamen is but an imperfect one. It is unlike the others in appearance, has no anther, and is generally more or less bearded, and from this fact botanists have suggested the common name of "Beard tongue." It shows, however, how difficult it is to suggest common names for the common people, who are apt to think Latin names hard, simply because they are unfamiliar; for though "Beard-tongue" has been repeated over and over again in our botanical text books, it is rarely, if ever, used by the common people for whose supposed convenience or prejudices it was coined; while its botanical name, Pentstemon, has become also its common one. All persons say pentstemon, as they say dahlia or verbena,—and it does not seem any more learned or pedantic than to say "Beard-tongue." It is rather that some botanists dread the effect of hard names on the common people, that so much anxiety is exhibited for common names. But when a plant is wholly new, and a name has to be learned, it is seldom any more difficult with an intelligent person to learn a short Latin word than a long vernacular one. When there is any marked peculiarity in a plant, or it becomes associated with any pretty story, the "common name" grows in a natural way, and it seems useless to forestal the common people with a common name.

It is interesting to note how rapidly our knowledge of this beautiful genus has grown during the present century. In 1800, when Willdenow gave a history of all the plants known to that time, *Pentstemon pubescens* was about all that was known. In 1818, when Nuttall wrote his "Genera of North American Plants," he noted but nine species, and six of these were species he had himself described and named. Douglass added more to the list between 1834 and 1836, during his explorations along the Pacific coast. In 1878, Dr. Gray, in the work from which we have taken our description, describes no less than seventy species, and it is probable that some more will be added as the interior of the continent becomes better known.

In beauty few genera will compare with *Pentstemon* as now known. They seem peculiarly adapted to the dry and arid soil so characteristic of the dryer regions of our country. In these dry regions flowers are noted for their brilliant colors, but few give greater brilliancy to the floral scenery than the various forms of *Pentstemon*. Their roots are generally woody, and extend deep into the earth,—and they are thus enabled to keep their foliage fresh during many months of dry weather.

The species we now illustrate is one of the most beautiful of this beautiful genus. It was one of the latest of Mr. Nuttall's discoveries, having been found during an excursion to what was then the Arkansas territory, on which he was sent at the expense of Mr.

Zaccheus Collins, and a few other gentlemen of Philadelphia, who subscribed together $500 for the purpose. He was to explore the territory for one year. It is interesting to note how few were Mr. Nuttall's wants when on these journeys; and how great was his desire to explore these then unknown wastes. His letters to Mr. Collins when on these excursions, are preserved in the Academy of Natural Sciences of Philadelphia, and in one he tells that the amount subscribed has not nearly been exhausted, and hopes, in consequence, to be allowed to remain another year. The new plants he found, were described in the Transactions of the American Philosophical Society, in 1834, and our *Pentstemon Cobæa* is there introduced to us for the first time. The *Cobæa* is a familiar plant to those who love greenhouse flowers. It is a Mexican climbing vine of rapid growth, and has large purple bell-shaped flowers. In his description of this Pentstemon, Mr. Nuttall says, "flowers bluish-purple, nearly as large, and almost the same form as those of *Cobæa scandens*." There is, indeed, something to warrant this suggestion, when the Pentstemons then known to Mr. Nuttall are considered, but the likeness is not very close. Drummond collected it in Texas soon after Mr. Nuttall found it in Arkansas, and a figure appears in the *Botanical Magazine* for 1836, taken from a plant raised from Drummond's seeds. It is much smaller, however, than the flowers given in our plate, which is from a plant raised from seeds collected by the author in the Indian Territory, in 1873. It very much resembles Mr. Nuttall's plant, and may be regarded as the typical form. Mr. Nuttall states that he found it in the sterile and denudated portions of the prairies of the Red River, in calcareous soil,—flowering in May. The seed was gathered by the author, in August, no flowers being visible at that late date.

The period of its flowering depends in a great measure on the location in which it grows. In the garden of the writer, near Philadelphia, it flowers about the end of June. In England it appears much later. In Mr. Robinson's *Garden* for December, 1878, he writes: "The *Cobæa Pentstemon* ('Beard-tongue' does not seem to have taken any root in England) is one of the handsomest of the yet introduced kinds. It may be found in several collections of hardy plants near London, and thrives vigorously and generally quite unprotected, but it is very difficult to propagate in quantity. It does service in trade lists for several spurious kinds, but it can be readily recognized when in flower by the above description. It is a native of the interior of Texas, and was introduced to culture forty years ago." It may be remarked here that it makes very few offshoots, and this is why it is scarce in cultivation when attempted to be propagated in that way; but it matures seeds in some abundance, and may be increased more freely in that manner than by offsets. It is not confined to the interior of Texas, but extends up through Arkansas and Indian Territory to the southern part of Kansas. It has not been found, to the writer's knowledge, anywhere this side of the Mississippi, or west of the Rocky Mountains.

Before the Virginian botanist Mitchell saw sufficient reason for making a distinct genus of these plants, the older botanists, who had become familiar with the earliest known species, classed them with *Digitalis*, *Chelone*, or *Dracocephalum*. The curious development of the fifth stamen afforded a very fair character on which to start a good generic character, independently of the difference in the general appearance of the plants, which is always a hint to the modern botanist to look after distinctive lines. Mitchell, in noticing this peculiarity, notes that he cannot conceive of what use can be this long style-like filament. Even then observers looked for some especial use to the plant in every variation of form, as it is even more the habit to do now. When so much is studied in regard to the cross-fertilization of flowers, and so general a belief exists that there is an advantage to the race by cross-fertilization, it is not surprising that some have fancied they see in this fifth stamen an aid to this cross-fertilization by in some way obstructing an insect's passage, and causing it to better carry away to other flowers some of the pollen it has received. But there are others who see in many of these forms merely an expression of that variety which must exist in all nature.

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EXPLANATION OF THE PLATE.—1. Two sections of a complete flower stalk. 2. Flower with corolla cut away to show the direction of the fifth stamen across the throat of the corolla.

# WILD FLOWERS AND NATURE.

## A SUMMER FLOWER.

When the winds were still, and the sun rode high,
And the clear mountain stream ran wimplin' by,
When the wee birds sang, and the wilderness bee
Was floating awa' like a clud ower the sea,—
This bonnie wee flower was blooming unseen—
The sweet child of summer— in its rokely green.
—HOGG,—*The Etrick Shepherd.*

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MODERN BOTANY.—Prof. Millspaugh writes to *Science* his views of modern botany. In the old time, and that, not so many years ago, all that was taught of botany, was how to analyze flowers, so as to be able to understand the descriptions in the text books, and thus enable one to collect and distinguish species—after which the specimens were carefully dried and put away ; and the results of the study of little more value than the results following a boy's collection of postage stamps. In modern times the flower-lover is really more of a botanist than the old-time collector of museum specimens. He looks into the flowers and watches their growth, endeavors to understand how they are made, and studies how they behave ; and those particular branches of study indicate a botanist to-day, far more correctly than the mere collector of plants once did. The geography of plants, or the knowledge of how they are distributed over the surface of the earth, has also come to be a very fascinating department of botany, and the investigation of their histories in relation to altitude, climate, and even the relations of plants to insects have come to be quite as much matters of botanical interest, as the older studies which relate simply to the classification of plants.

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HOLY BASIL.—Dr. George Birdwood writes in the *Academy* :—"The most sacred plant in the whole indigenous *materia medica* of India is the Tulsi or holy basil (*Ocymum sanctum*) sacred to Krishna and called after the nymph Tulasi, beloved of Krishna, and turned by him into this graceful and most fragrant plant. She is, indeed, the Hindu Daphne. The plant is also sacred to Vishnu, whose followers wear necklaces and carry rosaries (used for counting the number of recitations of their deity's name), made of its stalks and roots. For its double sanctity it is reared in every Hindu house, where it is daily watered and worshipped by all members of the household. No doubt also it was on account of its virtues in disinfecting and vivifying malarious air that it first became inseparable from Hindu houses in India as the protecting spirit or Lar of the family. In the Deccan villages the fair Braminee mother may be seen early every morning, after having first ground the corn for the day's bread, and performed her simple toilet, walking with glad steps and waving hands round and round the pot of holy basil, planted on the four-horned altar built up before each house, invoking the blessings of Heaven on her husband and his children—praying, that is, for less carbonic acid, and ever more and more oxygen. The scene always carries one back in mind to the life of ancient Greece, which so often is found to still live in India, and is a perfect study at once in religion, in science, and in art."

Basil is often grown in American gardens, the seeds being easily obtained from the larger establishments.

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PENTSTEMON COBÆA IN GARDENS.—The London *Garden* says of this pretty herbaceous plant :

It grows about two and a half feet high, and has broadly ovate and sharply-toothed root-leaves, the upper ones somewhat heart-shaped and stem clasping. The flowers are very large, being nearly two inches in length, with a much-inflated tube and a spreading limb about one inch across. The color is pale-purple, distinctly pencilled with red streaks, and delicately suffused with yellow, with the base of the tube of a creamy white. They are freely produced in long leafy racemes late in autumn. As well as being one of the most beautiful, this is one of the rarest of Pentstemons.

A Natural Wild Flower Garden.—Mr. W. H. Carpenter, Logan's Ferry, Pa., gives the following pretty sketch of a natural flower garden :

"Fourteen miles above the mouth of the Allegheny River, there is a sheer and rocky hillside facing the Northwest. From November till February scarcely a glint of sunshine falls upon this declivity, and the snow remains unmelted till late spring. The moisture, freezing as it runs over the rocks, forms a billowy Niagara of icicles, — a person longing for Spring, wonders if these slopes will ever be green again. Yet, the earliest wild flowers are found just there ; not in single specimens, but in masses and millions.

For two miles the Allegheny Valley Railroad has had a precarious single track, perched between the rocks and the river, clinging to the hillside, yet ever sliding into the river, which is here deep and lake-like.

This road is now blasting for a second track, and much of the beauty is spoiled. Yet, the rocks now decorated with masses of wild columbine on every ledge, will soon be clothed with waving verdure ; and nodding asters will bid good-bye to the sun.

First in the procession, as seen from the car windows, thousands of hepaticas blink at the first warm sun. At the same time there is a pure white flower, bunched on a long stem, and a delicately veined flower of the same form. I should like to know the names of these (possibly an anemone). A little later we have the dog-tooth violet, the common blue violet ; also the yellow, the white and a veined white. Then there is a coarse plant with umbels of a disagreeable reddish-blue color, very showy. Then masses of wild phlox, wild larkspur, millions of Dutchman's breeches, and a white sheet of trilliums. Every ledge has its tuft of red pinks or the flaming columbine. Now, May 20, there are masses of a delicate lavender flower, slightly fragrant, and an ageratum-like plant with a purple tuft. Also a white plumed flower rising from lily-like leaves. Then I found a yellow flower on a long stem, rising from two beautifully veined leaves close to the ground. The laurel thickets are also in bloom, soon the hedges of the thimble berry will be rosy with blossoms, and some swampy ground formed by the railroad embankment affords space for a number of bog plants, while Eighteen-mile-island is a wilderness of wild roses. Altogether this mile or so forms an enchanting natural garden in the early spring, combining bog, river, rocks and hanging gardens. It lies between Hutton and Parnassus, and a rapid panorama of it can be obtained by those travelling over the Allegheny Valley Railroad."

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Food of Animals.—Though animals are classed as carnivorous and graminivorous, it is being demonstrated that many, equally with man, occasionally mix their food. Even canines in a perfectly wild condition have been known to diet on Indian corn, when animal food has been scarce. Among birds many woodpeckers, though they have a structure specially adapted to predation on insects, are fond of vegetable sweets, and the Baltimore oriole may be often seen searching flowers for nectar. The sap-sucker's holes in many trees are well known, though those who hold to the strict lines between the herbivora and carnivora contend that the holes are bored in search of insects, which the experienced entomologist knows are not there. The lover of natural history is well aware of many instances in which one creature manages to live on the labor of another, and a correspondent of *Science* speaks of the aid to the humming bird of which this reference to the sap sucker reminds one. He says the holes these birds make in the sugar birches and maples, are frequented later on by the humming bird, which makes a rich repast on the sugary liquid which flows from the holes.

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Variable Forms and Leaves in the Japan Ivy.—A lady of Buffalo sends us a large, grape-vine-like leaf of the *Ampelopsis veitchii* believing it can scarcely be the same as the ones with smaller and even trifoliate leaves. It was on account of this power of variation that it obtained two botanical names,—the smaller leaved and trifoliate conditions deceived botanists, and thus it received the name of *Ampelopsis veitchii*,—while the large, grape-vine-leaved condition was the only one at first known to botanists, and received the name of *tricuspidata*. There are many instances of plants having very different foliage under different vital conditions, but few are perhaps so strongly marked as in this case.

THE SWEET GUM.—If Thomas Meehan had been let into the secret of the honor intended him by the citizens of Philadelphia of planting a tree in Fairmount Park on Arbor day to bear his name, and had been asked to choose his own favorite tree, the sweet gum—the one planted—would possibly have been his choice. It was a youthful essay on the beauty of this tree prepared for the celebrated Andrew Jackson Downing's *Horticulturist*, now many years ago, which had much to do with leading the public to ask for more. It leads to the remark that little seems to be known of the flowers of this tree. The male and female flowers are borne together at the ends of the branches, as in the accompanying illustration. The male or pollen bearing flowers are on the erect branch. The female head of flowers are on the slender stalk drooping in among the leaves.

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ACONITUM UNCINATUM, L.—For several years I have had this plant in cultivation, and thus been able to give its habits close attention. There is no doubt that it will twine whenever it has the opportunity; but its process is peculiar and worthy of note. At first, not knowing that the plant would twine, I gave it no support. It then invariably became prostrate. But after I gave it the support of a stick I found that the upper portion of the stalks would make one or two revolutions around it. In a little while, growing stronger, it would push upward a few inches, without twining, but often relaxing its hold. Then it would again encircle its support. In this way, I have had it attain the height of six or seven feet.

The fact that the species twines was first noticed, I believe, by Elliott, in his "Sketch of the Botany of the Carolinas," vol. 2, p. 20. Later botanists, who have mentioned the fact, have probably done so on his authority. I think its being an *intermittent twiner* is now stated for the first time.

*A. uncinatum* is probably not a native of the State of New York. The plant, collected many years ago in Venango County, N. Y., and then lost, was called by that name by Dr. Torrey in the "Flora of New York," vol. 1, p. 21. But his description was quite plainly derived from Elliott's sketch. It seems altogether likely that this is the same plant discovered by Mr. Willard, in the same county, in 1857, or perhaps earlier. It was again found, in some considerable abundance, near Oxford, in the same county, by Mr. F. V. Coville, from whose specimens Dr. Gray determined it to be a new species, which he described as *A. Noveboracense*, "Bull. Torrey Bot. Club," vol. 13, p. 190. Through the kindness of Mr. Coville, I have also had this plant in cultivation. Its validity as a species, distinct from *A. uncinatum*, admits of no question. In addition to other differences, it may be mentioned that, although slender, it is perfectly erect; that its height is about a foot and a half, and that it shows no disposition to twine.

These facts suggest two inquiries—Does the true *A. uncinatum* enter the state of Pennsylvania? Has *A. Noveboracense* been recognized in that state?

DAVID F. DAY.

Buffalo, N. Y.

SWEET GUM.

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THE VIRGINIA CREEPER AS AN EPIPHYTE.—Mr. Burnett Landreth, Bristol, Pa., says:

"On one of our Virginia farms is an old pride of China tree to which we planted, many years ago, a vine of *Ampelopsis quinquefolia* which finally reached to a height of twenty feet. By an accident the lower part was destroyed, and the main stem pulled off. One of the upper branches rooted in a crack of the bark of the tree, and it is now a very flourishing vine drawing its entire root substance from the circulation of the tree."

THE RELATION BETWEEN FLOWERS AND INSECTS.—When the views of the close relation between color and fragrance in flowers and insects, now so prevalent, were first promulgated, the enthusiasm with which they were received was boundless. Our own great naturalist, Prof. Asa Gray, boldly challenged any one to produce an instance of color or fragrance, in which it could not be shown that the flower had special arrangements for cross-fertilization. There are many such illustrations, but, on the other hand, some authors are getting together a formidable list of showy or sweet flowers that are so arranged that self-fertilization can only occur. In a recent issue of the "Proceedings of the Philadelphia Academy," the author of a paper on the subject boldly claims the whole of the very large order of Compositæ, in which are a large number of showy flowers, as being self-fertilizers. He claims that wherever it occurs that nearly every flower or floweret on a plant is fertile, this of itself is an evidence of close fertilization. He claims that in those orders like Orchideæ, and others in which the flowers are dependent on wind or on insects, failure to perfect seed in most flowers is the rule. In this chapter the author cites the well-known pokeberry, blue-curls, tomato, pepper, witch hazel, besides some cultivated plants of other countries, as being so arranged that cross-fertilization is impossible.—*Independent.*

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THE ELDER AS A POISONOUS PLANT.—The public prints have recently given an account of the death of five children, at Tarrytown, N. Y., and the serious injury of seven more who subsequently recovered, from eating a poisonous root. One of the attendant physicians has kindly sent to MEEHANS' MONTHLY a portion of the root and a young growing shoot of the plant which did the injury. It is a great surprise to find that the plant is nothing but the common elder, and this is probably the first instance to be placed on record, of the roots of this plant having this very virulent character. Lindley in his "Medical Flora" states that the bark is highly purgative, and that overdoses have been known to produce inflammation of the bowels. On chewing a small piece of the root it was found to have a slightly pungent and inflammatory character on the tongue and lips. It is said that the children mistook the roots for the roots of the Calamus,—there is some resemblance of a general character to this root, in the thick, fleshy, under-ground stems of the elder. It seems impossible to guard against mistakes of this kind,—all that can be done is to inform children of these probable dangers wherever they are likely to be tempted by them.

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THE PRAIRIE ROSE.—The early botanist Michaux named this *Rosa setigera*,—and a trifle later one was named in the "Hortus Kewensis," from seed sent by Masson, who, by the way, died five years later in Canada, *R. rubifolia*. Botanists consider them the same, and use the older name. But the plant in the writer's recollection as seen in Kentucky barrens years ago, seems so different from the more eastern Atlantic form as growing in his garden that he would be thankful for a few seed from that region. Masson's plant is the western form, and it may be worthy of being kept distinct. It is in the "Flora of Warren County, Ky.," by Sadie T. Price, without the address, strangely enough, of the authoress, on the book.

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MEEHANIA CORDATA.—Prof. Britton has been going over carefully the genus *Cedronella* and finds that *C. cordata* of eastern North America cannot be considered as a *Cedronella* at all, but should be the representative of an entirely different genus. He compliments the senior conductor of this magazine by dedicating the new genus to him as *Meehania cordata*.

Although the plant is not uncommon in woods and thickets from western Pennsylvania to North Carolina it is not growing in the Meehan Nurseries, and as it is a flower well worth cultivating, a root or two from some good friend who may chance to come across it, or a few seeds, would be thankfully received.

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APHYLLON FASCICULATUM.—A Spokane correspondent finds *Aphyllon fasciculatum* attached to the roots of *Eriogonum niveum*, as a host plant. Probably many or most of these plants are not over particular in their nefarious modes of life. The writer of this paragraph has traced the *Aphyllon's* connection with the roots of one of the sage brushes, *Artemisia frigida*, in Colorado.

# GENERAL GARDENING.

## MIDNIGHT IN THE EAST.

"'Twas midnight—through the lattice, wreath'd
With woodbine, many a perfume breath'd
From plants that wake when others sleep,
From timid jasmine buds, that keep
Their odour to themselves all day,
But, when the sun-light dies away,
Let the delicious secret out
To every breeze that roams about."
—THOMAS MOORE.

THE SCIENCE OF TREE PLANTING.—A nursery friend tells a tale in Meehans' nursery office, that is worth preserving. He had told a purchaser of trees, that the whole science and art of successful planting was in leaving no air spaces among the roots, but in packing every possible crevice and cranny solidly with earth. "Draw the tree up and down snddenly and jerky," said he, "so that the powdered earth may fall in between the roots, before the final pounding down." The trees died and were prononnced "no good." The nurseryman went to see what was the matter, and was assured that his advice had been faithfnlly practiced. "The trays had been jark'd a lots o'times." But it was found that they had been set immediately after a heavy rain when the earth was paste, and naturally a "jerk" under these circumstances, would leave more space than before.

The nurseryman assured the "gardener" that it was all right but a trifle of fertilizer had been omitted. A few brains shonld have been added to the planting. In amazement the man exclaimed, "Brains! where did ye get 'em. We have bought bone dust, but never had enny brains."

The story reminds us of one of Colman's jokes. The doctor placed on the bottle "before taken, to be well shaken." When the doctor came the man was dead. "Did you follow my instructions?" "Yes, we shook him well." "Shook what?" "The patient, we shook him twice." "Shook the patient! and what then!" "and then sir, he died." Just in this way are "practical" instructions in tree planting often carried out.

PROGRESS IN TRAVELING.—Few classes have so much to be thankful for in the great progress of railroading as the lovers of trees and flowers. Where would the millions of trees be, that are now flying at railroad speed all over the world, if we had only the stages of the last century? Below is a clipping from the Philadelphia *Weekly Mercury* of March 8th, 1759.

"JOHN BUTLER, with his waggon, sets out on Mondays from his House, at the Sign of the Death of the Fox, in Strawberry Alley, and drives the same day to Trenton Ferry, when Francis Holman meets him, and proceeds on Tuesday to Brunswick, and the passengers and goods being shifted into the waggon of Isaac Fitzrandolph, he takes them to the New Blazing-Star to Jacob Fitzrandolph's, the same day, where Rnbin Fitzrandolph, with a boat well suted, will receive them, and take them to New York that night. John Butler returning to Philadelphia on Tnesday with the passengers and goods delivered by Francis Holman will again set out for Trenton Ferry on Thursday, and Francis Holman, etc., will carry his passengers and goods, with the same expedition as above to New York."

Even the writer of this paragraph can remember starting from New York at 2 P. M., reaching Philadelphia at 1 P. M. the next day.

John Butler must have elicited great astonishment at his enterprise in his day, but there seems no one to do him homage now. The Fitzrandolphs are, however, still among the enterprising citizens of the districts in which their ancestors made such sensations.

GROWTH OF PUBLIC PARKS.—As noted recently in MEEHANS' MONTHLY there is a growing feeling that a small park in a large city, should appeal to public charity, as well as depend on municipal legislation. The *Pacific Rural Press* has been informed that a wealthy lady of San Francisco has in her will a bequest of a million of dollars for small parks, and that another lady has set apart five hundred thousand dollars for a similar purpose.

CISSUS AMPELOPSIS. — A friend hands the conductors Hitchcock's "Woody Plants of Manhattan Co.," Kansas, and asks what kind of a *Cissus* this is, as it is not found in any standard work on American botany. The query affords an excellent opportunity to show the folly of each one deciding for himself what name to adopt. Among the grape vines—*Vitis*—are some with few seeds and some slight differences from ordinary grape vines. Linnæus thought there were sufficient grounds for a distinct genus, and founded it as *Cissus*. As knowledge progressed, no botanist could say positively that he had a *Vitis* or *Cissus*. So Gray, Hooker, and all the botanists dealing with botany in a broad sense, have abandoned it, and the plant in question is *Vitis indivisa*, as so named by Willdenow. "Index Kewensis," just issued, follows Gray and other great systematists, in calling it *Vitis indivisa*. Now let it be granted that Mr. Hitchcock is right, and that the plant ought to be *Cissus Ampelopsis* by the makers of monographs, dictionaries and encyclopedias in general use, —how is botany served by his employing a term which none of his readers understand? In this office we set aside our own preferences, and follow "Index Kewensis." The plant in question will be *Vitis indivisa* in MEEHANS' MONTHLY.

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FOREST FIRES AND WICKED WEEDS. — Whenever there is a costly forest fire, or some pestilential weed overruns a territory, the first rush is to legislatures for help. It reminds one of the Æsopian fable of the wagoner stuck in the mud, and praying to Jupiter to pull the wheels out. There could be no forest fires without an accumulation of dead brush. The annual fall of leaves or dead twigs might have a yearly fire run through them, and the trees not suffer at all. Instead of employing hordes of "inspectors," at enormous salaries to dress up in uniform, to "arrest gunners or campers, who may build fires or accidentally start a blaze," the same number of "men," at half the wages, to go to work and burn dangerous material, would make forests absolutely safe. And this is just as true of pernicious weeds. A handful of men, boys, or girls, would pull out all the weeds on a hundred acre farm in short order, if taken in time. But it seems so nice to look to "the State" for everything.

DISEASE IN THE JAPAN IVY.—In the common Japan ivy, *Ampelopsis veitchii*, as it is commonly called, the leaves, covering a large surface, may often have a yellowish tint. If the stocks are examined carefully, they will be found, near the healthy green portion, to be in a measure girdled by a fungus. This fungus affects the whole specimen and foliage above the part injured. In a general sense the branch is said to be affected by a ferment fungus. This attack does not in any way affect the general health of the plant, for although the branches with these yellowish leaves eventually die, a strong vigorous growth of shoots below the point of injury soon follows, and covers the vacant spaces. A similar form of disease attacks many plants, for instance, the pear and apple blight is of this character. Sometimes the attack is so severe and at so low a portion of the plant as to nearly destroy the whole of it, but as a general thing it is only the upper portions that are affected, leaving the remainder of the tree perfectly healthy.

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RHODODENDRON AND CHRYSANTHEMUM.—A friend suggests that Rhododendron and Chrysanthemum, are all Greek to him. That he is an English speaking person, and would be glad if MEEHANS' MONTHLY would give him the easy common name. The Greek names are the only common names known to the conductors. The only English name for the one the writer ever heard was "Roaring Dandy," and for the other "Mum." But these names are anything but "common" names. Common names are very pretty. "mist-bush" is preferable in gardening to *Rhus cotinus*, "sweet William," to *Dianthus barbatus*, and "oak" to *Quercus*. But when a plant gets common under its botanical name, it is really the common name we use. Dahlia becomes just as much a common name, as *Dahlia* is a botanical one. There is much ignorance and misconception in much of the talk about uncommon "common" names.

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PARKS AT NEWARK, NEW JERSEY. — A Board of Public Parks has been established at Newark, New Jersey. It is composed of five members. No definite plans have been decided on. Mr. F. W. Kelsey, a noted horticulturist, is one of the Commissioners.

LANDSCAPE GARDENING. — The history of landscape gardening as an art subservient to the pleasure and happiness of mankind has had its rests and progressions in our country as well as in all others. Taking up only the present generation, the department of landscape gardening, the art of beautifying ground made a grand advance under A. J. Downing. His sudden and unexpected death, severely paralyzed the movement, and the civil war brought it almost to a standstill. Horticulture and gardening came to mean little more than raising trees, fruits and vegetables for profit, departments well worthy of all the attention they received, though not capable of affording the real pleasures which gardening as a fine art and as an element in a broad education is capable of affording. A few good men bravely battled for better things. William Saunders, the designer of the pretty Hunting Park in Philadelphia, and the Gettysburg Memorial Park; Charles H. Miller, well-known in connection with Fairmount Park, and other good work around Philadelphia and elsewhere; Olmsted & Co. who have had much to do with many of the fine parks of the country and private establishments; and others of more or less fame that might be mentioned, did much to preserve our national reputation for garden taste through these dark times. But possibly the greatest gain to the modern revival of intelligent gardening for its own sake came in with the establishment of Professor Sargent's venture in *Garden and Forest*. Those who take pride in the modern revival, will always have to hold *Garden and Forest* in grateful remembrance. The field is now large. It is a pleasure to note the income of new laborers. Even advertisements in this line show fine taste. On the table is a little book-card, as such an advertisement might be called, issued by Gray and Blaisdell of State street, Boston, giving just enough to lead to a taste for more. They show how the true artist is not a destroyer of that which exists, but one who can make nature do a little more than she is herself disposed to do. Some of the illustrations are from English sources. The one here reproduced shows how an old-fashioned church can be advanced to a model of beauty. The balustrade fence seems a part of the building, and makes the vegetation appear as part of the architectural belonging, instead of something foreign to the plan, an effect heightened by the two elm trees which are in some sense made to appear as supporters to the spire.

LANDSCAPE GARDENING.

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THE ENGLISH OAK IN AMERICA.—The English oak, *Quercus robur*, grows with great rapidity in the North-eastern Atlantic States, but the dry atmosphere favors the growth of a minute fungus, which gives the leaves a glaucous hue. It has been found by experience with other trees, especially the larch, that when the leaves get injured in this way, the timber is not durable. In California, the English oak does not suffer in this way, and it promises to be one of the best timber trees there.

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GARDENING AS A CIVILIZER.—Mrs. Lora La Mance, of Pineville, Mo., has a pretty story in the New York *Independent*, relating the happy effect of allowing "street arabs" a kindly view of some of her floral treasures. Pessimists love to remind us of Æsop's story of the thawed snake "stinging" the farmer's family. This sometimes happens, but in nine cases out of ten the kindly heart of humanity wins.

PUBLIC SCHOOL GARDENS.—It is remarkable how often ideas which seem to be desirable are found impracticable after being tried. A few years ago there was an effort made to introduce "little rock gardens" and other flower adornments, in connection with some of the public schools in Philadelphia. Some six years ago, the writer of this paragraph visited one school that had a number of little rockeries filled with ferns and other plants of a prominent character, which made the school yard look like a little paradise. Visiting the school again recently it was a surprise to find that the whole had disappeared, leaving only the circular patches which had been bricked over where the "little rock gardens" had been. On inquiry he was told that the little girls and boys wanted space to romp about and play, and they soon got tired of walking around admiring the ferns, "like old men and women."

Although it is very desirable to cultivate in children the love of nature and a desire to learn, it must not be forgotten that they are still children, to whom romping and playing becomes in a measure second nature.

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CHIONANTHUS RETUSUS. — Superintendent Laney of the Rochester Board of Park Commission, says of the Chinese fringe tree.—

"In MEEHANS' MONTHLY for October, 1892, at page 154 you described *Chionanthus retusus*. On the 28th inst. *Chionanthus retusus* blossomed in Highland Park, Rochester, N. Y. The plants were obtained from Veitch, of London, England, two years ago, and have proved hardy here. In comparing the plant with your plant, there can be no doubt but that our plant is rightly named. Our plant does not seem to be so stiff as your plant represents it to be. I think that the plant is a valuable acquisition. *Chionanthus Virginicus*, is not in blossom yet.

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COLZA-OIL.—Mr. Tillinghast notes, that in 1861 and 1862 about 17,000 gallons of colza-oil were used as an illuminant in light-houses along the coasts of the United States. The wild cabbage *Brassica oleracea*, a native of Europe, furnished the seed from which this oil was expressed. The home cultivation of the plant and home manufacture of the oil were fostered by the United States Light-House Board, and promised to become industries of some importance, but experiments instituted by the Board soon proved that lard-oil answered the requirements of an illuminant better than "colza," and the latter was soon superseded by the former. Mineral oil is now used.

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A COSTLY BOULEVARD.—Without consulting any landscape gardener, and without any commission or intelligent body or person to plan or take charge of the work, the City Councils of Philadelphia have voted to knock down a mile of buildings to make a tree-lined avenue 160 feet wide. The assessed valuation of some 500 houses and land taken is near five millions,—and the total cost of the work estimated variously at from ten to twenty millions. Philadelphians will boast of having the costliest mile of road in the world. Over 400,000 cubic yards of earth will have to be hauled in from somewhere to get trees and grass to grow over the brick and mortar debris of the buildings, but the Mayor vetoed the bill.

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ADDITIONAL PARKS FOR PHILADELPHIA.—During the recent session of the legislature of Philadelphia some small parks were ordered in addition to the number already provided for. One of these, to be called "League Island Park," is nearly 300 acres in extent. This is the largest effort that has been realized since Fairmount Park was provided for so many years ago. It is in the opposite end of the city, from Fairmount, and is to be arranged chiefly as play-grounds and recreation spaces for the people generally. It is in the midst of a large working population that have no means of reaching the larger and greater park.

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MICHAELMAS DAISIES.—What we know as asters, are called in England, "Michaelmas daisies," from the fact of one having been dedicated by the old monks to Saint Michael, whose festival is held on the 29th of September—the asters flowering about that time, come naturally into association with the festival of the Saint. One of our commonest species, *Aster puniceus* is said by the *Gardener's Chronicle* to be one of the most beautiful. There are a great number of varieties of these wild in our country; the one which they appear to praise the most highly they call *pulcherrima*.

WORMS ON LAWNS.—Before the advent of the lawn mower, worm casts made the chief plague of the scythesman. The whetstone had as much attention as the scythe in the effort to retain a sharp edge. Now and then, in his desperation, the mower would with a watering pot, drench the whole lawn with lime-water, and destroy the whole brood of worms for a time. They would come to the surface and die, thick as autumn leaves. Sitting on his lawn in the early morn, the writer notes the male robins pulling the earth worms out at an average rate of six a minute. It may be doubted whether lime water would be needed now, though the scythe had yet remained in use. How these birds know the worm is there, the writer has vainly endeavored to decide. He plants himself beside the worm cast, turns his head downwards in an attitude, either for better sight or better hearing, and in a moment the worm is on its way, presumably, to feed the female engaged in domestic duties, though numbers first serve the male robin's hungry appetite. None but male robins seem engaged in these early morning worm-hunting expeditions. Towards evening the female robins assist in worm explorations; but the cherry tree, generally, is more attractive to them.

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A SIX-CELLED APPLE. — Many species of plants will vary in the number of cells which the fruit contains. Some of the St. John's worts, for instance, usually have a fruit with five cells, six are occasionally observed. The apple, however, is uniformly five-celled, as every one knows, and a variation from this type is worth placing on record. A specimen of such a six-celled apple has been kindly sent to us by Mr. William Zimmerman, of Chicago. Mr. Zimmerman casually observes that it is very interesting to make thick vertical slices of the different kinds of fruits, holding them up to the light in order to see the structure.

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OSAGE ORANGE FOR RAILROAD TIES.—A correspondent relates that in 1873 a tie from an osage orange was placed in the road bed of the New York Division of the Pennsylvania Railroad. It is yet sound after 21 years of service. White oak ties on each side of it, have been replaced six times. The "olive wood" merchandise of some parts of Europe is made from Texas osage orange timber.

## FRUITS AND VEGETABLES.

LITTLE USED VEGETABLES.—A French horticultural magazine, *Lyon Horticole*, notes that a number of plants, not generally used, can be employed excellently as vegetables. In the market of Montpellier large quantities of *Thlaspi perfoliatum* is sold during the winter, under the name of "Salade de Campagne." It is said to be very agreeable. The demand is such as to make its cultivation in that vicinity very profitable. The dandelion in its young state is also sold in the markets of Lyons in considerable quantity, as is also the young leaves of the *Barkhausia*, for which no common name seems to be in use. The teazle, *Dipsacus sylvestris*, is also taken in large baskets during the winter, to the markets. Towards the Pole, it states, the natives use largely of *Arenaria peploides*, a statement which the writer of this paragraph can confirm, having seen it largely in use by the Alaskan Indians. The *Acanthus major*, the famous plant from which it is stated Callimachus obtained the idea of the celebrated Corinthian style of architecture, is also used in Arabia. As a vegetable, it is said that the plant yields so handsomely, that one will furnish enough to make a meal for a large family. Species of *Begonia* it is also stated are used frequently in a fried condition in warm countries. Roots of species of the bellflower, *Campanula Rapunculus*, and the *C. trachelium*, when boiled, it is said make very agreeable eating; while the *Carduus oleraccus*, although not frequently used, makes a very toothsome dish. "Asparagus in oil" is said to be the common name given to the young shoots of our American plant, *Phytolacca decandra*. Although it is known to be useful, it is not often used with us, probably because asparagus can be had at the same time very cheaply, and probably better suited to American tastes. The young, tender sprouts of a number of plants are named as being capable of making rare dishes. Among these "Solomon's Seal" is mentioned, *Convallaria polygonatum*, various kinds of broom rape, *Orobanche; Tragopogon pratensis*, which is already slightly known in our gardens as the *Scorzonera;* a species of *Phyteuma*, or bellflower, and a number of others. Even the common mignonette is used as a vegetable occasionally.

VITAL RESISTANCE. — The *Prairie Farmer* makes a good point in relation to animals what horticulturists and others have found in connection with plants, namely, that there is something in what is generally called vital resistance. No one knows exactly what they mean when they talk of vital power, and yet it is well-known, from the results, that there is something which resists untoward circumstances, although we may not be able to define exactly what it is. For instance, a tree may be taken from a well fed and well cared for piece of ground, and another, apparently the same in every respect, may be taken from a piece of ground comparatively impoverished; the two may be transplanted into new circumstances precisely alike; the winter may be unusually severe, or the summer may be exceptionally hot. The tree from the impoverished piece of ground dies, the one from the well cared for piece of ground lives, and not only lives but does well. The full feeding has given something to the plant which we call vital power, and which the other one did not possess. The term vital resistance under these circumstances is very aptly chosen.

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THINNING FRUIT.—Mr. Edward W. Lincoln, in his report to the Worcester Co., Massachusetts Horticultural Society, states that from practical experience there is no alternate bearing in fruits. The reason why trees do not bear in successive years, is chiefly from the fact that they have been allowed to overbear the previous year. He experimented chiefly on pears. From a single tree of the Belle Lucrative he pulled off two thousand young fruit. Not only does this practice tend to give regular crops every year, but the size and quality of the fruit is much enhanced by this practice. He thinks there is no more reason why fruit growers should not systematically thin out the too abundant crops, than there is for not hoeing out superabundant corn and potatoes.

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INTERPLANTING.—A paragraph in a recent issue of MEEHANS' MONTHLY called attention to the great advantage of keeping the soil cool between growing crops, in warm latitudes, and that this good point can be gained by growing trailing vines under the trees or between the crops. In southern Illinois, it is found that the strawberry and the melon, will grow admirably together. The strawberries are planted in rows some 3 or 4 feet wide, and melons between them. The runners are kept cut off and the melon vines not allowed to run over the strawberry plants. In this way the earth is kept completely shaded and always cool. The famous strawberry grower of Pittsburg, a quarter of a century ago, the Rev. Jeremiah Knox, used to attribute a large measure of his wonderful success, to laying clean rye straw between the strawberry rows; but it would seem that the trailing plants, like the melon with its mass of foliage, would do just as well as a shade, besides yielding a profitable crop.

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PREPARING PEARS FOR USE.—One of the most successful pear culturists that we know of, who always has pears of first class quality, states that his method of curing them is very simple. He is careful that the fruit should be left on the trees as long as the trees will bear them. He ascertains when the fruit is fit to gather by gently lifting it, if it separates easily from the branch, it is fit to gather; if it does not seem inclined to separate, he leaves it on a little longer. He does not put them in an absolutely cool place, but one where the temperature may be about 55 or 60. He prefers this spot to be rather dark than light. In this way he thinks he gets the best advantage that it is possible to get in the ripening of pears.

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PRUNING PEAR TREES.—Few things require more judicious pruning than the pear tree. The strong, upright shoots will rob the lower branches of most of their vital power, and these require to be kept in check. Summer pruning,—which means twisting out the strong shoots before they have grown vigorously enough to rob the weaker ones,—is the essential point in the proper pruning of the pear.

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THE PORCUPINE AS A PEACH EATER.—The porcupine is known as one of the enemies of the peach growers in California. It ascends to the larger limbs of the peach trees, drawing in the fruit from the weaker branches, and gnawing off the upper and richer portions of the fruit, leaving the under side on the trees. The peach growers watch for, and shoot them.

MILDEWS AND BLIGHTS. — Since the perfection of the microscope, blights, mildews and molds are not the mysterious agents in producing disease they once were. They are now well understood to be as truly organized structures as an ox or an oak. Even when it came to be understood that most of the troubles known as blights and mildews were microscopic plants, it was thought they were rather scavengers, the work of which was to clear away dead or diseased vegetation. To a great extent this is the fact,—but it is now known that they can attack in many instances, perfectly healthy vegetation, and thus induce disease. Still the number of species that possess this superlative power, seems limited. Among the large number of species belonging to the mushroom family, only a few can injure healthy vegetation. One known as *Agaricus melleus*, is of this special class. The common mushroom, *Agaricus campestris*, has never been known to do anything but feed on decaying matter, but the "spawn," or *mycelium* of the other, attacks the healthiest root, and, in some way not yet clearly made out, spreads a baleful influence through the whole tree. It is particularly fond of the roots of the alder, hornbeam, peach, and the white pine and Norway spruce amongst evergreens. There are some kinds which attack both dead and living matter. A flower pot on a wooden shelf, will often be found with a cobwebby fungus on the wood under it, and this has been known to spread to grape vine stems, in graperies, and thoroughly girdle them. Probably the best illustration of the power to attack living vegetation is in the case of the potato disease, — eminently known as "the blight." This is caused by a minute parasitic plant, which has had many changes in its scientific name, but is now known as *Phytophthora infestans* — a close relative of the one which destroys the young growth of the nettle tree, and causes it to branch out by second growths, to innumerable small "crow's nests." Where this potato fungus kept itself for so many ages, has never been found, but in 1845 it appeared on the south side of the Isle of Wight, from spores blown (mere conjecture) from some one of the many vessels which pass close by the island. It went northward, traveling about forty miles a day, reaching Scotland in about ten days. Every potato plant, new variety or old, well or poorly cultivated, became blackened in one night, as if killed by a white frost. Those who study pathology tell us that even these minute plants lose much of their vigor by age, or by traveling over old ground. This is said to be the virtue of inoculation against small-pox. The potato plant now satisfies itself, at least in America, by blackening only portions of a leaf. The illustration, which by permission of Hon. Sterling Morton, we have had made from one of the Department's plates, illustrates this point. On the whole it is a great gain to get the fact so thoroughly impressed on the horticultural mind, that molds and mildews will attack at times perfectly healthy vegetation.

POTATO LEAF WITH BLIGHT.

# BIOGRAPHY AND LITERATURE.

## IN A COLLEGE SETTLEMENT.

The sights and sounds of the wretched street
Oppress'd me, and I said: "We cheat
  Our hearts with hope. Man sunken lies
In vice, and naught that's fair or sweet
  Finds further favor in his eyes.

"Vainly we strive, in sanguine mood,
To elevate a savage brood
  That, from the cradle, sordid, dull,
No longer has a wish for good,
  Or craving for the beautiful."

I said; but chiding my despair,
My wiser friend just pointed where,
  By some indifferent passer thrown
Upon a heap of ashes bare,
  The loose leaves of a rose were sown.

And I, 'twixt tenderness and doubt,
Beheld, while pity grew devout,
  A squalid and uneager child,
With careful fingers picking out
  The scentless petals, dust-defiled.

And straight I seemed to see a close,
With hawthorn hedged and brier-rose;
  And bending down, I whispered, "Dear,
Come let us fly, while no one knows,
  To the country—far away from here!"

Upon the little world-worn face
There dawned a look of wistful grace,
  Then came the question that for hours
Still followed me from place to place:
  "Real country, where you can catch flowers?"

—FLORENCE EARLE COATES,
in *Harper's Weekly*.

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REAL COUNTRY WHERE FLOWERS GROW.—In Philadelphia there is an organization known as the Children's Country Week Association, which gathers up poor children, who never saw anything but brick and mortar, and arranges a "week in the country" for them. The beautiful poem of Mrs. Florence Earle Coates, at the headline of this column, presents a pathetic incident in this lovely task. Imagine the pleasure of a barefooted and ragged girl, gathering faded rose-petals from an ash heap, to be invited to the country where "real flowers" grow! What a grand theme for a master in painting! This "College Settlement" is a patch in the slums, given by Charles Starr as a location for a mission. The City Councils of Philadelphia have placed on the city plan as a small park the whole square of rookeries surrounding it, and have recently arranged to tear down some of them. By next year the children of this forlorn section will have a chance to see near them what real flowers are in "Starr Garden Park."

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HISTORY OF THE OSAGE ORANGE.—At page 96 it is stated that the first osage plants were raised by Bernard McMahon. The seeds of the exploring expedition were divided between McMahon, and David Landreth at Twenty-Second and Federal streets. McMahon's plant when it flowered proved to be female as is shown by the specimen of Nuttall in the Herbarium of the Philadelphia Academy. The first seed-bearing fruit known were from Landreth's plants, and he had to get pollen bearing branches to fertilize the female flowers. This tree was sacrificed twenty years ago to the march of improvements. The first osage orange balls seen by the writer of this paragraph, came to the Royal Gardens, Kew, in 1847, where the writer was then a student. It fell to his lot to open the barrel on a day when Queen Victoria was a visitor. The odor was most grateful. The Queen inquired of the Director if they were eatable, and was assured they were. Biting at one, she looked up suspiciously with a "Sir William!"—for the Director was not above a practical joke even with royalty. "I have been told, your majesty, that the natives eat them," which was true enough, and the joke went no further. They are said to have something of a true mulberry flavor, roasted.

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YELLOW OAK.—Mr. C. C. Laney, Superintendent Board of Park Commissioners, Rochester, N. Y., observes:

"The term 'yellow oak' is often applied by the early settlers of this county to *Quercus tinctoria*, as the inner bark was formerly used for dyeing yellow. In southern New York the term yellow oak, is generally applied to one of the chestnut oaks."

MISS WILKINSON, THE LANDSCAPE GARDENER.—The interest in Miss Wilkinson's success as a landscape gardener is spreading to such an extent that the lady's portrait is given in this issue of MEEHANS' MONTHLY, from a picture kindly placed at our disposal by a correspondent. In addition to the points in the lady's history heretofore given in the magazine, we learn that she was born in Manchester, and, determining to devote herself to landscape gardening as a profession, applied for admittance to the "class" which was one of the Crystal Palace studies. At first she was told the class of studies were only intended for men, but they finally admitted her. The celebrated landscape gardener Edward Milner, was her instructor. Surveying, leveling, drawing plans, making estimates, and staking out from plans were mastered under him. She has been six years professionally engaged, and, besides a large general practice does all the work of the London Public Gardens' Association, which has secured 380 small parks for that great city in twelve years. When asked by the correspondent if the profession paid her, she replied that it paid her—"but then her wants were few." On the suggestion that her success might be owing to the fact that, being a woman, she probably charged less than a man would for similar services, she replied:

MISS WILKINSON.

"I certainly do not let myself be underpaid as many women do. There are people who write to me because I am a woman, and think I will ask less than a man. This I never do. I know my profession and charge accordingly, as all women should do."

Vauxhall Park, her work, has recently been opened by the Prince of Wales, who is regarded as a good critic in landscape gardening. He characterised it as one of the best pieces of landscape gardening he had seen.

ARBOR DAY IN PHILADELPHIA.—Arbor Day was observed in Philadelphia with more than usual earnestness. An event to be remembered was the planting by the Pennsylvania Forestry Association of eight trees to the memory of departed eminent Philadelphians, Dr. Lundy, the founder of the Pennsylvania Forestry Association, Dr. D. Hayes Agnew whose fame as a surgeon did honor to Philadelphia everywhere, General Meade, the hero of Gettysburg, and one of Philadelphia's most energetic Park Commissioners, Geo. W. Childs, the famous philanthropist and proprietor of the *Public Ledger*, Furman Sheppard, one of the brightest ornaments of the Philadelphia judiciary, Ex-Governor Hartranft, the first prominent high official to aid in the forestry movement, Dr. Joseph Leidy, the eminent naturalist and ex-President of the Academy of Natural Sciences, John Welsh, for years President of the Park Commission, and a leading spirit in all that tended to the commercial greatness of his native city and in honor of one living representative of Philadelphia's interest, Thomas Meehan.

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CLEISTOGENE FLOWERS. — In violets and many other plants, seeds are produced from unopened flower buds, no corolla being perfected as in "flowers" popularly so called. This is called, in botanical language, cleistogamy. Mr. Darwin looked on this method of seed-bearing as an effort of the plant to economize. In a recent study of the wild balsam, *Impatiens fulva*, which has both petal bearing and cleistogene flowers at times, Prof. Thomas Meehan reports to the Academy of Natural Sciences, that it seems but a result of impaired nutrition, and of no physiological importance. Prof. Geo. Henslow writes that this idea as to the origin of cleistogamy, is in exact accord with his conclusion as given in his "Origin of floral structures," pp. 262–265, issued in 1888.

# GENERAL NOTES.

CENTENNIAL BUSINESS FIRMS—DAVID LANDRETH & SONS.—In the Old World it is a boast of a number of business firms, that they have been in existence from son, back to father, grandfather, and others,—in some cases for ages. In America this is rarely the case,—constant changing being the order of the day. It is said that in the United States there are not over thirty business firms that have been in existence for over 100 years. The nursery and seed business may be proud that one of these is the well known firm of David Landreth & Sons, whose descendant, Burnet Landreth, is the organizer and president of an association of centenary firms, established in order to do honor to this class of business enterprise. The original David Landreth was born in 1752, at Berwick on the Tweed,—the boundary line between England and Scotland. He was fond of tree growing, and emigrated to Canada in 1781; but shortly after cast his lot with Philadelphia. In 1786 he associated with his brother Cuthbert, and started the business of nurserymen and seedsmen. The first place of business was on what is now Market Street, and exactly opposite the immense structure now erected as the terminal offices of the Reading R. R. Co. The nursery was at Twelfth and Filbert Streets,—a part of Philadelphia then far in the country. The representative of the firm in the next generation, David Landreth, Jr., was born in the above place, in 1802,—having their nursery in the lower portion of the city, between the Delaware and Schuylkill Rivers, on the spot that is now occupied by one of the finest public schools in the city of Philadelphia, namely, the Landreth School, in the the 26th ward. Nearly all the large old trees of any value about the city of Philadelphia, and in the public squares, came from these nurseries. In 1810 the seed establishment was moved to Second Street, below Market, which was then the great centre of Philadelphia business enterprise. A branch establishment was established in 1818 at 353 King Street, Charleston, S. C., the whole of which was confiscated, together with all the merchandise, by the Confederate States in 1862, on account of the proprietors being residents of the North. As the city grew the seed establishment was moved westwardly, and 85 Chestnut Street was bought in 1820 for the purpose. In 1828, the more modern period began, with David Landreth, Jr., and Thomas Landreth, the son of Cuthbert, taking the business of their fathers; David, Jr., taking the seed department, and Thomas the nursery. The original David Landreth died in 1836. To aid in the business, partners were soon after taken, so that in 1843 the firm became Landreth & Munns; in 1845, Landreth & Fulton. In 1848, the seed business, having grown to an enormous extent, no less than 500 acres having been purchased near Bristol,—the nursery branch was sold out entirely to James D. Fulton, who subsequently removed it into Delaware. In 1853, agricultural implements were added to the seed department, and the present large premises, No. 21 and 23 S. Sixth Street, purchased and occupied. In 1864, another effort was again made to reconstruct the southern branch, which was destroyed by the rebellion, and St. Louis, Mo., selected; but this was discontinued after seven years. In 1860 another grandson, Oliver Landreth, became connected with the firm, which has been continued since as David Landreth & Sons. The present partners are, Oliver Landreth, Burnet Landreth, and Leopold Landreth, the father—David Landreth, the second, having died in 1880. The conductors of MEEHANS' MONTHLY have been led into these examinations through a search for some facts connected with the great botanical collector, John Lyon, after whom the *Lyonia arborea*, or, as it is now often called, *Andromeda arborea*, was named. So little is known about him that it was thought but justice to try to find more. It was found that it was the firm of Landreth that first gave him encouragement to come to America, and who had him first in their employ. They first employed Robert Buist, and other famous men.

# WILD FLOWERS AND NATURE.

## THE FERN TO THE OAK.

Beneath an oak, majestic, straight, and strong,
A fern lifts up its head in whispered song;
Its feeble speech has purpose wise and true,
For it, O bard, would utter thanks to you.
It seeks to say how in its little time
It has enjoyed your royal shade sublime:
'Tis ever summer where you are, and I
Look up through spreading boughs to see the sky.

WM. BRUNTON, *in Christian Register.*

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SOME RARE WISCONSIN PLANTS, *Calycocarpum Lyoni*.—Mr. J. M. Dunlop says: "During a visit to Durwarch Glen, which is situated in the valley of the Wisconsin River, I found several plants which, though a close observer, I had never seen before. One of them, *Calycocarpum Lyoni* deserves a place wherever climbers are useful. It grows on the heavily wooded ridges and climbs to the top of the tallest trees, covering them with long festoons of whitish flowers. The glen is formed by a rift in the rocks through which a fine spring creek finds its way to join the Wisconsin River. The rocks are 200 feet high and wider apart at the bottom than at the top. The face of the rocks is covered with *Sullivantia Ohionis*, with its graceful white flowers; *Woodsia Ilvensis* is found in great abundance, as are also *Polypodium vulgare*, *Asplenium Trichomanes*. Over the tops of the rocks and fully exposed to the storm are plenty of *Cheilanthes lanuginosa*."

While reading the above we were struck with the thought of how little is known of John Lyon, after whom Nuttall named this species and also the *Lyonia arborea*, and held the note as a reminder to see if something could not be hunted up not known about him. The matter grew in interest, and it has taken longer than we expected, but we hope soon to give all that is known so far of this energetic, though unfortunate early botanist.

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BEES AND FLOWERS.—In early spring, whenever there is a fine day, honey-bees wander from the hives in search of flowers. No open flower of any kind is neglected by them. Even the obscure chickweed receives attention. One of our subscribers, Mr. W. T. Davis, of New Brighton, Long Island, has even seen them at work on the skunk cabbage, "remaining in the spathes a long time," as making the most of the few floral opportunities of the early season when these flowers come.

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INCENSE PLANT OF CALIFORNIA.—A correspondent of the *Pacific Rural Press*, thus speaks of a pink flowering currant of that region which may be *Ribes sanguinea*. "As an attractive hedge I would suggest the *wild flowering currant* or 'Incense plant' (so called by the native Californians, probably on account of the odor it exhales as resembling the perfume of *burning incense* which is used in Catholic church ceremonies).

It is a shrub of rapid growth with currant leaves and abundant beautiful pink blossoms, which though smaller in form, resemble the purple lilac. Those in the grounds mentioned above, are now in full bloom, and particularly sweet in untold charms for bees of almost every variety that swarm over and around the bush in the sunshine, and add to the peculiarly dreamy *dolce far niente* effect of the flowers' fragrance on the beholder by their monotonous droning and drowsy humming. We find here too, the red elderberry, a handsome shrub which has been successfully cultivated. The *Ceanothus* or California lilac has grown here into an elegant tree, and attracts attention to its soft pale blue flowers delicately fragrant as a spice breath of air from 'Araby the blest.'"

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VARIATION IN RUDBECKIA HIRTA. — Mr. Williard N. Clute remarks: "Since *Rudbeckia hirta* has become common in our meadows it has established a reputation for being one of the most variable of our composites. Its tendency to produce more than the usual number of rays is well-known, but here is a phase of doubling that is not so common. Fig. 1 represents a flower head composed of two heads in one, each perfect, except that one stem does for both, and the rays are

Fig. 1.

absent from the side where the heads join. Many heads of this kind were found, often of more than two combined heads ; the highest number found together was five (Fig. 2), and these had a single ray-flower near the centre of the head. In this case the common name of the *Rudbeckia*,—'cone flower'—would not apply for the centre was flat instead of a cone. Only one specimen showed a doubling of the stem, and this is seen in Fig. 3. Above and below the opening the stem is perfect, only the divided portion hinting at the doubling."

The study of malformation, which Dr. Masters terms Teratology, is a specially interesting one. It affords the best field for exploring derivations of one part of structure from another, or even the evolution of one species from another. The cases are not only curious but instructive.

Fig. 3.

Fig. 2.

BOTRYCHIUM VIRGINICUM.—Mr. E. Jellett writes : — " Prof. Thomas Meehan, in his 'Flowers and Ferns of the United States,' notes the fact, that *Botrychium ternatum*, and *Botrychium lunarioides* are identical plants with a variation only ; and that between the two varieties of *B. lunarioides var. obliquum*, and *var. dissectum* recorded by Dr. Gray, there is no real difference. The writer is of the opinion that not only are the botrychiums mentioned, varieties ; but he also holds to a belief that every recorded botrychium common to the eastern section of the United States is but a variety of *Botrychium virginicum*. In "Franklin Woods," Philadelphia, there is an extended area covered by botrychiums, which one year will appear as *B. virginicum*, and at another year will appear in every form from *B. ternatum* to *B. virginicum*. To test the matter, several plants of *B. dissectum* were grown in pots, and in one year they reverted to the common form in *B. lunarioides*. The change, however, was not so marked. In good growing seasons we find *B. virginicum*, in dry seasons we have *B. lunarioides*. For a time this was the cause the writer confidently settled upon ; but it was not conclusive, for it did not always hold good. With some of the recorded species as *ternatum* for example, the form would appear to be fixed ; but the facility with which many of the species and varieties change, and by a little attention to soil and moisture may be made to change, gives strength to a belief that they are but varieties of an original form."

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THE VALUE OF THE GRASSHOPPER. — Locusts and other devastatory insects, like Satan, occasionally serve useful purposes to mankind. It was said lately of Sutter county, Cal.: "Egyptian corn is being harvested mostly by the blackbirds, they having to take to corn on account of the scarcity of grasshoppers. The thermometer during the week has been hovering around the 100° mark."

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VICIA CRACCA.—The blue vetch is now thoroughly naturalized in New England, and forms one of the most beautiful features in certain classes of wild flower scenery. A correspondent who sends a sample for naming, says it is getting the local name of "shell flower."

# ACTINOMERIS HELIANTHOIDES.

## SUNFLOWER ACTINOMERIS.

### NATURAL ORDER, COMPOSITÆ.

ACTINOMERIS HELIANTHOIDES, NUTTALL.—Stem hirsute, winged, except near the base; leaves alternate, ovate-lanceolate, decurrent, acuminate, serrate, hirsute and scabrous; corymb contracted; rays 6 to 14, long, irregular; scales erect. In barrens and prairies, Western States It is a rough plant, with the aspect of a Helianthus. Stem 2 to 4 feet high. Leaves 2 to 4 inches by 6 to 14 inches, grayish. Rays 1 inch long. (Wood's *Class Book of Botany*. See also Gray's *Synoptical Flora*, and Chapman's *Flora of the Southern States*.)

It was many years ago, when portions of Illinois formed genuine prairies, that the writer first made his acquaintance with the plant here illustrated, *Actinomeris helianthoides*. Nearly all its floral companions had gone to rest, and most of its own family were in a seed-bearing state. Amidst yellow and fading leaves everywhere some branches of the *Actinomeris* were pushing out green and healthy, as if the dying plant had taken another lease of life. They seemed to enjoy their late autumnal blooming, though had they been living things they would have sorrowed in the thought that their joyousness could not last for long. They might well follow Shakespeare and say:

"That time of year thou may'st in me behold,
When yellow leaves, or none, or few do hang
Upon those boughs which shake against the cold,
Bare ruin'd choirs, where late the sweet birds sang.
In me thou seest the twilight of such day
As after sunset fadeth in the west,
Which by and by black night doth take away,
Death's second self, that seals up all in rest;
In me thou seest the glowing of such fire
That on the ashes of his youth doth lie;
As the death-bed whereon it must expire,
Consumed by that which it was nourished by.
This thou perceiv'st, which makes thy love more strong
To love that well which thou must leave ere long."

Possibly it was this last feast of the blooming prairie that gave a deeper impression of its beauty than if it had been seen in its full season, late summer and early fall, surrounded as it would then have been by more gaudy companions. At any rate the seed was collected and sown, and from these were raised plants which have been continually kept in the author's garden, and from which the present illustration was taken. It has never seemed so strikingly handsome as it did that day, but it has always seemed to have a good claim to a place among the pretty things.

Unlike the *Actinomeris squarrosa* figured in series I, vol. 1, tabula 39, of the *Flowers and Ferns of the United States*, this species was unknown to botanists until the end of the last century, when it was discovered on the western side of the Alleghenies by André Michaux, the well-known botanical traveler, who in 1785 was sent by the French Government to make a thorough examination and collection of the flora of our country. Very little of special interest has been noted in regard to it since that time, and most of the references in the author's collection simply name it as an item in some local catalogue of the plants found there. Thus in Beardslee's list of the plants of Ohio it is found "in the central and southern parts of the state," and so on in other lists. So far as its present ascertained geographical range is concerned, Dr. Gray, in the *Synoptical Flora*, observes that it is found "from Ohio to Iowa, Georgia and Texas." Within this range are many tracts in which it has not been noted, and yet where it probably exists, so that there is room for geographical discovery in relation to it. Dr. Chapman notes that it seems to commence at Louisville in Georgia; it travels southwesterly.

It has proved, however, a very disturbing element in systematic botany. Michaux regarded it as a species of *Verbesina*, and named *V. helianthoides*. Some of the species, then called *Verbesina*, had been referred to *Coreopsis*, and Michaux remarks of this species that it had the flower of a *Helianthus*, with the seeds of a *Coreopsis*. In 1818 Nuttall took some of those regarded before as *Verbesina* and *Coreopsis*, and made the present genus *Actinomeris*, the name being made up of Greek terms, referring to the irregularity in the size of the ray florets, as may be noted in our picture. He says of it: "a genus apparently intermediate with *Verbe-*

*sina* and *Helianthus*, but without any shadow of affinity to *Coreopsis*. The calyx and rays remove it from *Verbesina*. From *Helianthus*, notwithstanding an approximation in some measure by the calyx and discal florets, it is easily distinguished by the flat and marginated seeds, furnished with transverse sutures and persistent awns." In the work quoted, *Genera of North American Plants*, he first describes this species, and probably had it chiefly in mind in establishing the new genus. Here it has remained till 1884, when Dr. Asa Gray remanded it back to the position it was placed in, and it appears in *Synoptical Flora* as *Verbesina helianthoides*. It is interesting to note that only two are retained in *Actinomeris* by Dr. Gray, *A. squarrosa* and *A. alba*, the one which mainly gave birth to the new genus being found illegitimate. We learn from this that there is nothing in nature to warrant man in dividing plants into genera and species. What is or is not a good genus is simply the opinion of an expert. Dr. Gray, with his abundant material and excellent judgment, is an "expert" whose decision will doubtless meet with universal acceptance; but as the name *Actinomeris helianthoides* has become so generally diffused through botanical literature, it seemed to serve general convenience to retain it for the present at the head of the chapter. The lines drawn between this and neighboring North American genera are very fine. If a student for the first time had to study plants of *Coreopsis*, *Bidens*, *Actinomeris*, *Verbesina*, *Ximenesia* and *Helianthus*, he would be uncertain from written description alone in which genus to place the specimen.

It may be here noted that little account has been taken by authors of the form and character of the floret in their descriptions of genera and species of Compositæ. In other natural orders these points in flowers receive due consideration. In our figures of *Compositæ* enlarged drawings of the florets have generally been given, much to the instruction of the student. So far as *Helianthus* and *Verbesina* (Encelia) are concerned, Fig. 2, in the present plate can be compared, as florets have been given of all, and the striking differences be readily seen. The outline drawing of the receptacle (Fig. 3) is given—a portion of the plant which also furnishes good characters in Compositæ.

The student will find in the sunflower Actinomeris a good chance to consider the curious occurrence known as "decurrence" in plants. This is the appearance of a green portion of the leaf-blade running down the stem from the point where the leaf-blade seems to have its origin. The writer believes, and has regularly taught, that the leaves of plants do not originate just below an axillary bud, but from some indefinite point far below this,—that the outer portion of the bark, or epidermis of the bark of branches, is composed of the sheathing bases of leaves,—and that the point near the bud is simply the point of departure of the leaf when forming leaf blades. The edges of the leaves either meet (forming square stems) or lap over (forming round ones), or in cases of decurrence, not meeting but having free portions of what might have been a true leaf-blade. The winged stalk in the upper portion of the flowering branch gives a good illustration of the continuity of the leaf to where the blade diverges. One can scarcely imagine it to be a case where leaf-blade has become decurrent—that is, has run down from the point of the leaf's divergence. The term winged-stem seems more accurate than "decurrent."

This department of botany, technically known as morphology, has not received the attention from general plant-lovers that it deserves. It is taught as a general principle, that every part of a plant is but leaf-blade modified. But few students fully appreciate the fact that a leaf, a branch, a bud, a flower, with all their many interesting particulars, might have been some other organ than what they are, but for the varying intensity of a growth wave,—and again that this intensity is influenced by varying powers of nutrition. It gives an interest to every species of plant unknown to the last generation. The plants of the natural order *Compositæ* afford better opportunities for comparing the facts of morphology than probably those of any other class. It is especially interesting to compare a composite with an umbelliferous head. But the *Actinomeris*, with its many special vagaries, as they may be called, is especially instructive. The coiling and overlapping make the five-winged stalk.

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EXPLANATION OF THE PLATE.—1. Full-sized branch, in three sections. 2. Magnified floret, with its subtended scale. 3. Vertical section of the receptacle.

# GENERAL GARDENING.

## THE BOWER OF ROSES.

There's a bower of roses by Bendemeer's stream,
And the nightingale sings round it all the day long;
In the time of my childhood 'twas like a sweet dream,
To sit in the roses and hear the bird's song.
That bower and its music I never forget,
But oft when alone, in the bloom of the year,
I think—is the nightingale singing there yet?
Are the roses still bright by the calm Bendemeer?

—THOMAS MOORE.

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THE CALIFORNIAN DOGWOOD.—A recent number of *Garden and Forest*, on page 436, has a chapter by Prof. Greene on the Californian flowering Dogwood, *Cornus Nuttallii*, first figured in plate 467 of "Aububon's Birds," and again figured by Nuttall himself in a supplement to Michaux's "Forest Trees of America." It brightens the woods of Northern California, Oregon and Washington with its bright white "bracts" (so called), in the spring of the year, as our *Cornus florida* does the woods of the eastern Atlantic states. It is not seen in cultivation in the east, on account, as we suppose, of some microscopic fungus following it from the west to the east, and being much more destructive in the east than in its own country, —at least every attempt to induce it to take to eastern cultivation in Meehans' Nurseries during the past quarter of a century, has been an absolute failure. If any one has succeeded with it, it would interest numbers of our readers to learn the fact.

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INTRODUCING NEW PLANTS —There is always sympathy for the raisers of new plants and fruits. It is well understood that they seldom receive anything near like the equivalent which other good service to progressive horticulture seems to require, but the party who has to make old acquaintance with the new plant is seldom thought of, and yet, as a rule, the first introducer to commerce of the new plant gets as little for his work as the original raiser does. Almost any large firm could give their experience in confirmation of this point. The popular Japan ivy is a good illustration. The first nurseryman probably to offer it for sale in America was Mr. John Charlton, of Rochester, N. Y., who spent heavy sums of money in advertising it, with very few to respond. Thousands of dollars have since been made on the sales of this plant, but very little from this is represented in Mr. Charlton's bank account. That was in 1868. Few plants have achieved so wide a popularity—it is seen everywhere, in every part of the Union. The writer of this paragraph was recently showing the Japanese Commissioners the sights of the city of Philadelphia, when one of the commissioners exclaimed in his newly acquired English, and at the same time pointing to the ivy growing over the walls of the Academy of Natural Sciences: "Me feel very much at home."

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DOUBLE CHINESE PRIMROSES.—There are some semi-double Chinese primroses that can be increased from seed, but the old-fashioned kind, and the best kind, does not seed. The *Journal of Horticulture* says that at a meeting of an English society, "the propagation of double primulas was also discussed, Mr. Collier advising that after flowering, when the plants have become somewhat exhausted and are becoming tall, the lower leaves can be trimmed away, and some sphagnum moss mixed with sand placed round the stems. Into this material in April and May the stems will root as quickly as possible, when they can be taken off and potted. Young cuttings like these make the best of plants. Some use turfy soil for rooting the stems, but he considered moss aud sand to be the best."

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LARGE AMERICAN CHESTNUTS. — Now and then cases of large fruited American chestnuts come up, only to be resolved eventually into the Spanish variety. When any one has a large American chestnut, really and truly, this office would thankfully examine such a specimen. The twigs should be sent with the fruit.

FERNS FROM SPORES.—There is no great difficulty in raising ferns—at any rate, those of the commoner varieties—from spores, the chief necessities being that the latter should be fresh, and that plenty of patience and close attention be brought to bear upon the operation. The spores may be sown in pots, pans, or boxes, either of which must be half filled with broken bricks, &c., for drainage, and surfaced with some fine, mellow loam of a rather sandy nature, used in a somewhat rough condition, and by no means sifted. Some use peat, but this is so liable to "green" on the surface as to be comparatively useless, for if once the mossy growth gets ahead of the tiny fernlets, good-bye to all chance of saving more than a very small proportion of them. With the object of avoiding this occurrence, as well as the necessity for such frequent waterings as are needed during the summer, fern-spores are usually sown in the winter or early spring, when evaporation is much less active. The soil is moistened by dipping the pots or pans nearly to their rims in water for a few moments, and when thoroughly saturated the spores are scattered evenly over the surface, but no covering of soil or sand whatever is given. When sown place the pots, &c , in a quiet corner of a moderately warm stove, or in some place where a temperature of 60 degs. to 70 degs. is regularly maintained, with a moist atmosphere and freedom from draughts. Those who raise ferns in quantity usually improvise a kind of low pit or frame at the end of a warm house, where the seed-pots, &c., can be kept by themselves, and cover them, but not too closely, with loose sheets of glass. Shade from even slight sunshine is necessary, and the soil must be kept constantly moist, but by dipping only, no water being given overhead until the ferns are well up and growing. In due time, if all goes well, the tiny ferns will appear, presenting the appearance of a kind of lichen on the soil. From this the wee fronds will presently begin to push up, and they must then be pricked out into other boxes in little clumps, as at this stage it would he impossible to separate them. Here, with a fair share of warmth, moisture, shade, &c., the seedlings will grow very fast as the summer draws on, and when beginning to touch may be separated and pricked out singly into other boxes of any good, light, loamy or peaty soil. Still keep them warm, moist, rather close and lightly shaded, and when strong enough transfer them to "thumb" (2-inch) pots, and from these shift them on into larger sizes as required. The great thing is to maintain a suitable atmosphere—genial, humid, and "quiet"—about the young plants. In some houses young ferns appear by thousands without any trouble or care, while in others it is only with great difficulty that they can be raised at all.—B. C. R. in *Gardening Illustrated*.

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DRACOCEPHALUM NUTANS.—The growing love for wild flowers has developed into an increased taste for growing hardy herbaceous plants, and in borders especially, for they are now getting common in many gardens. With this growing taste there is encouragement to the florist and nurseryman to introduce new and beautiful kinds. One of the best of these new additions is the *Dracocephalum nutans*, and which, perhaps, the lover of plain English names might want to translate into the "nodding dragon's head," although it would be difficult to say in what way this name would be applicable to this plant. However, without starting the inquiry as to what is in a name it may be stated that it is among the most beautiful of all the early spring flowers ever introduced. The frost is scarcely gone before the plant is a blaze of blue. The blaze in this case would properly mean a sulphur blaze. Many plants that are beautiful do not continue long in blossom, but this plant produces a succession of bloom continually for two months. It is closely related to the catmint family, or *Nepeta*, and the foliage when rubbed has the pleasant odor of the plants of that family. A mass of these plants makes a brilliant show in the herbaceous ground.

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THE OAK-LEAVED HYDRANGEA.—Our excellent contemporary *Gardening*, has an illustration and a good word for the oak-leaved hydrangea. As it justly says, it is one of the most unique of foliage plants, as well as of considerable interest for its flowers. It was discovered by Bartram in his travels in Georgia, and has been distributed through the United States, mainly from plants originally brought to the Bartram Botanic Garden, by this zealous botanical collector of the last generation.

BEAUTIFUL GARDENS. — Mr. C. N. Garfield, of Grand Rapids, Mich., in an address before the State Horticultural Society, remarks on the peculiarity of ancient writings in picturing future places of happiness, ornamented chiefly with valuable minerals, — streets would be paved with gold, or enameled with rubies, and the inhabitants of these cities pictured as sitting in golden rocking-chairs, be-jeweled with opals or jasper, and singularly omitting all reference to the beauties of trees or the sweet sounds of song-birds. It is certainly remarkable that such pleasures have not been pictured in that happy way; but it only goes to show that there is evolution of mind as well as of material things in general, and we might infer from this thought, that mankind has wonderfully improved, when even such thoughts as those drawn out by Mr. Garfield, are regarded worthy of consideration.

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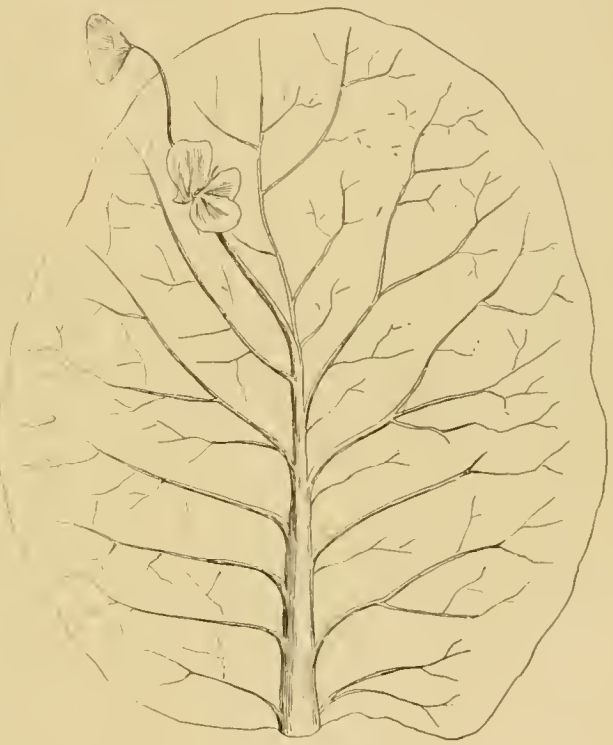
SOME NEW BLADDER-WORTS. — These plants, botanically called *Utricularia*, have been long known as curiosities in the vegetable kingdom, the whole under water growth being covered with small bladders which it was supposed were provided for the plant in order to enable it to float. Some species, however, grow among spagnum moss, out of water, and yet are as freely supplied with the bladder as those which grow in water. A few years ago an acute observer, Mrs. Mary Treat, of Vineland, N. J., discovered that the bladders were really little traps by which the plant caught minute animalculæ, the plant being a lover of animal food. The species are difficult to determine botanically, and it requires something of a specialist in that line of study to define them properly. A German botanist, Prof. F. Kamienski, generally receives the specimens collected on many of the exploring expeditions He has recently issued a paper in *Der Deutschen Botanischen Gesellschaft*, January, 1894, in which he describes nine new species, or marked varieties. These are from the most distant portions of the globe; one from Madagascar, several from Africa, one from Australia, and two from Brazil.

LEAVES CHANGING TO BRANCHES.—It is only during the present century that it came to be clearly understood that every part of a plant is but a modification of one simple form. The usual expression is that every part of a plant is but a modified leaf blade. It has, however, not been clearly demonstrated that even a leaf blade is also a modification, and that a leaf and a branch have such a close and common origin that one may be transferred to the other; but the gardener knows that many leaves, such as those of begonia, will produce buds that ultimately become woody plants, and many instances of these are occurring every day. Even a common cabbage leaf will often show a tendency to produce a woody stem. One of the best illustrations is the case of a cabbage leaf sent to us by Mr. Tillinghast, and which is reproduced here. The upper portion of the mid-rib has started off on its own account, and formed a stalk with small cabbage leaves projecting from it. Usually these little occurrences are passed over as mere curiosities without the observer perceiving the very important lesson which they teach.



CABBAGE LEAF.

TRILLIUM GRANDIFLORUM.—Mr. G. M. West, of Escanaba, Michigan, says :—"Probably in no part of the United States can such a marvelous display of *Trillium grandiflorum* be seen as in the so-called 'hardwood' of the upper peninsula of Michigan. In numbers, luxuriance of growth, size of flowers, purity and waxiness of the petals, we have never found a locality that could in anyway favorably compare with this section.

Their season of blooming there extends over a month in spring, and flowers measuring five, and even six inches across, are not uncommon. Many are found with four leaves, three sepals, and four petals ; a less number with four leaves, three sepals, and five petals ; and this spring near Escanaba, a lady picked a very fine double one. This plant had the three leaves and three sepals of the ordinary trillium, but it had six sets of alternate superimposed petals, making a very perfect eighteen petalled flower. The bulb was not secured.

As none of these 'erratics' were found during the forepart of the flowering season of this plant, one is led to believe that such flowers are from bulbs that have undergone some change which delays their growth and flowering. This double flower was found at the close of the season ; numerous four, and a few five-petalled flowers having been gathered at or about the same time.

I note that botanists claim that the petals of this trillium turn pink or greenish as they ripen, but a careful search for this characteristic in this region, disclosed that but few ever thus change color ; and so persistent is the pure white coloring, that I have been led to think that those showing a pink tinge, and they do this some time before they ripen, might be a different variety, or changed, as many flowers are, through some variation in plant food.

These flowers are there called wake robin, trillium, beth-root, wood lily, and buttermilk flower, the latter name coming from the peculiar odor of some of the varieties that are found in the lower peninsula of the State. They are usually in bloom on Decoration Day, and are freely used on that occasion, and no rare exotic or hot house favorite can excel in chaste loveliness, or graceful beauty, this grand white lily of the great north woods.

Perhaps it is not well-known that to produce the finest flowers they should be gathered when the buds are full grown but not open, by plucking them with as long stems as possible, taking them into the house where they can be kept at a temperature of not over 65, and kept fully supplied with water, when they will not only fully expand, but grow to a much larger size than if grown in the woods.

They are easily grown in the garden, the bulbs being taken up and planted during the summer after the plant has withered, and they could be readily forced for florists' use ; and for a "bride's bouquet" these exquisite flowers, stripped of their large green leaves and intermingled with maiden hair ferns, would compare favorably with the more rare and costly flowers that are used for that purpose."

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HOW PLANTS GROW.—In a recent issue of the Philadelphia Academy's "Proceedings," is a paper on rhythmic growth in plants. Growth is not continuous, but is a series of advances and rests, and some portions of plants rest longer than others, and again longer at one time than at another time, and many of the characteristics of plants are wholly dependent on the duration and force of the growth cycles. For instance, some plants form lateral flower buds during the growth of the flower spike, which continue growth and development as the flower spike advances. There will then be immature buds at the top of the spike, while the lowermost buds on the spike advance to full blossoming. The hyacinth illustrates this class. Compound flowers, of which the aster family is an illustration, make buds which are partially developed and then rest till the terminal bud is reached, which then blossoms, and the others successively downward follow. The author of the paper cited shows an intermediate class in the willows. The catkin is formed as in the second class noted. The lower florets in the catkin rest after being partially formed until the catkin has assumed its full length, but the new growth cycle is not from the top down or bottom up, but from the center of the catkin.—*Independent.*

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ACONITUM UNCINATUM.—Venango Co., N. Y. page 117, August issue, should have been Chenango Co.

INJURY FROM THE ROSE BEETLE.—Mr. J. G. Lester, of Olneyville, R. I., says: "For the first time in my garden the rose bug has attacked and greatly injured the leaves of the rhododendrons. The injury was done almost before I perceived it, and the disfigured leaves are now annoying me. If this is to continue I must try sponging, and I must find out what can be used without injury—about as bad—to the foliage. I have found the rhododendron quite sensitive to any wash—whale-oil soap, for instance.

"In these times of discontent the gospel of the garden can be preached, for to him who studies nature in the garden she is most kind —'she speaks a various language.'"

This is a case where Paris green could be applied without much objection. Where there are flowers enough to satisfy these creatures they seldom feed on leaves. One does not like to Paris green flowers.

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TREATMENT OF HEDGES.—Hedge plants that were set out last spring should not be cut down the coming season, but be allowed to grow for another year just as they like, if a strong and vigorous hedge be desired. The plants cut back when two or three years old will then sprout vigorously the next season, and during the summer following may be trimmed to the shape desired. It must not be forgotten that trimming in a measure weakens the roots. By letting plants grow for two or three years as they will, we get these roots strong before the weakening process of trimming is resorted to.

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THE YELLOW IRIS.—The yellow iris, *pseudacorus*, though growing in dry garden ground as well as any other iris, is really a swamp lover in its native place of growth. In the Old World it is found along lakes and ponds, frequently growing almost wholly under water. It is one of the best of all plants for lake decorations. In our country it flowers about the middle of June, or one might say in the middle of the iris season, as some kinds, notably some of the Japan species, are fully in flower about the middle of July.

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DOUBLE PANSIES.—Dark blue Pansies, simulating huge violets, are on our table from W. H. King, of Rochester, N. Y., and very pretty things they are.

## FRUITS AND VEGETABLES.

A STRAWBERRY GARDEN.—The Massachusetts Horticultural Society offers premiums for the best market garden of strawberries, and last year made a visit to the garden of two of the competitors, Mr. Varnum Frost, of Arlington, Mass., and Mr. F. J. Kinney, of Worcester, Mass. A committee of the Society visited these grounds on the 18th of June, and speak in terms of high compliment of the success of these gardens. They say that Mr. Frost prefers a deep subsoil for strawberries, which is capable of retaining moisture well during a dry time, and that very well rotted stable mature was found to be the best fertilizer. The plants are set about the first of May, in rows five feet apart, and the rows themselves distant from each other two feet. He has found the best economy in setting the plants about the first of August one foot apart in double rows, one foot distant from each other, leaving vacant paths two feet wide between each set of double rows. For this layer plants are considered the best. As he cultivates his ground wholly for profit, he raises other crops between the rows of strawberry plants set out in the spring; in this way he gets a crop of vegetables from the same ground before the strawberry fruit comes in. Mr. Kinney likes to manure his ground the year before he sets his plants, usually preferring to have a well manured crop of potatoes in the ground the year previous. He took off a crop of turnips after the potatoes were dug; then, in the spring, before setting the strawberry plants, about the first of May, sowed a large quantity of fine ground bone on the ground. He uses horse cultivators between the rows. Once a week, however, boys go through to hoe out weeds between the plants. The runners are layered by boys who pick the berries. The new plantations are made from these. After the ground has frozen two or three inches deep, the strawberry beds are covered with a thin layer of meadow hay—a few bean poles put over to keep the hay from being blown around. In the spring the hay is left on the runners where paths were wanted. Among the varieties used are many of the older standard kinds, such as Charles Downing, Jucunda and Sharpless. The latter is profitable, but seems more tender, being liable to be injured by late spring frosts.

GRAPE CULTURE IN AMERICA.—One need not be very old to know from personal knowledge, how rapidly has been the advance of grape culture in America. Our fathers planted the European grape, but they refused to grow more than a few years before failing ; and even after the secret of rapid improvement had been discovered by Mr. Rogers of Salem, Mass., very little was done towards shipping successfully. The Catawba and Isabella were the first to get a reputation for traveling, and the impression was that the Ohio growers were the first to make shipping successful. But recent government statistics give the credit to New York. The report says that in that state, in what is known as the Lake Cayuga district, a grower of grapes shipped his first crop, amounting to fifty pounds, to the New York market about 1845 by way of the New York and Erie canal. The grapes were delivered in good condition, and the commission houses handling them wrote encouragingly to the shipper, advising further shipments. The next year the grower was able to ship some 200 or 300 pounds. He overdid the matter, however, and the New York market on grapes broke under the pressure. It is estimated that during the season of 1890 there have been shipped from this same district and carried by the different railroad and express companies to New York, Boston, Philadelphia, and other distributing markets about 20,000 tons or 40,000,000 pounds of grapes, and probably one-quarter of this amount was, in addition, sold to wine manufacturers.

On the Pacific Slope the European grape thrives as well as in the Old World ; and grape culture has extended to a prodigious extent, not only in acreage over the whole territory but in individual vineyards, although the phylloxera, which is one of the foes of the European grape, is doing much mischief. The largest vineyard in the state is at Tehama, 3,800 acres, with 1,000 more soon to be added.

California has the largest vineyard in the world ; it may be well to state that she has also the smallest. It is a vineyard consisting of a single vine, in Santa Barbara county. It was planted by a Mexican woman about sixty-eight years ago, and has a diameter one foot from the ground of 12 inches, its branches covering an area of 12,000 feet, and produces annually from 10,000 to 12,000 pounds of grapes of the Mission variety (many bunches weighing six and seven pounds), the crop being generally made into wine. The old lady who planted this one-vine vineyard died in 1865 at the age of 107.

The one thing which strikes the conductors wonderingly is the use of the word viticulture instead of the well-known and perfectly understood term "grape culture." The latin word *vitis* is simply grape—and why grape-culture, one solid English word, is not as good as viticulture, which is a mongrel of two languages, is difficult to understand. It must be very trying to the government author to be compelled to speak of "vineyards" in the body of the paper,—it will probably come to "vitiyards" one of these days. But it will then be found he's not a happy man, for some one will discover that the vitises are not grown in yards but in fields, and then not merely fields but in whole townships. Verily the way of the word reformer is hard.

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THE WILDER AND WHITE IMPERIAL CURRANTS.—New fruits can only be judged fairly by comparison. To say that this or that variety is good, or very good, tells nothing that the progressive fruit grower can profit by. But this test was applied to the white imperial currant, and the Wilder—a red variety—sent to MEEHANS' MONTHLY by Mr. S. D. Willard, of Geneva. The Wilder is at least as large in bunch and berry as Fay's prolific, and sweeter—while the Imperial is equal to White Grape in every respect, but much sweeter. They are both good novelties.

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CRAMBE MARITIMA—A DELICIOUS VEGETABLE.—*Lyon Horticole* states that the blanched young shoots have been found to be a delicious vegetable. It is easily raised from seeds, or root cuttings. It gives at length its culture, which is similar to the culture of asparagus. The American form *C. Americana* is very common on the Atlantic sea coast.

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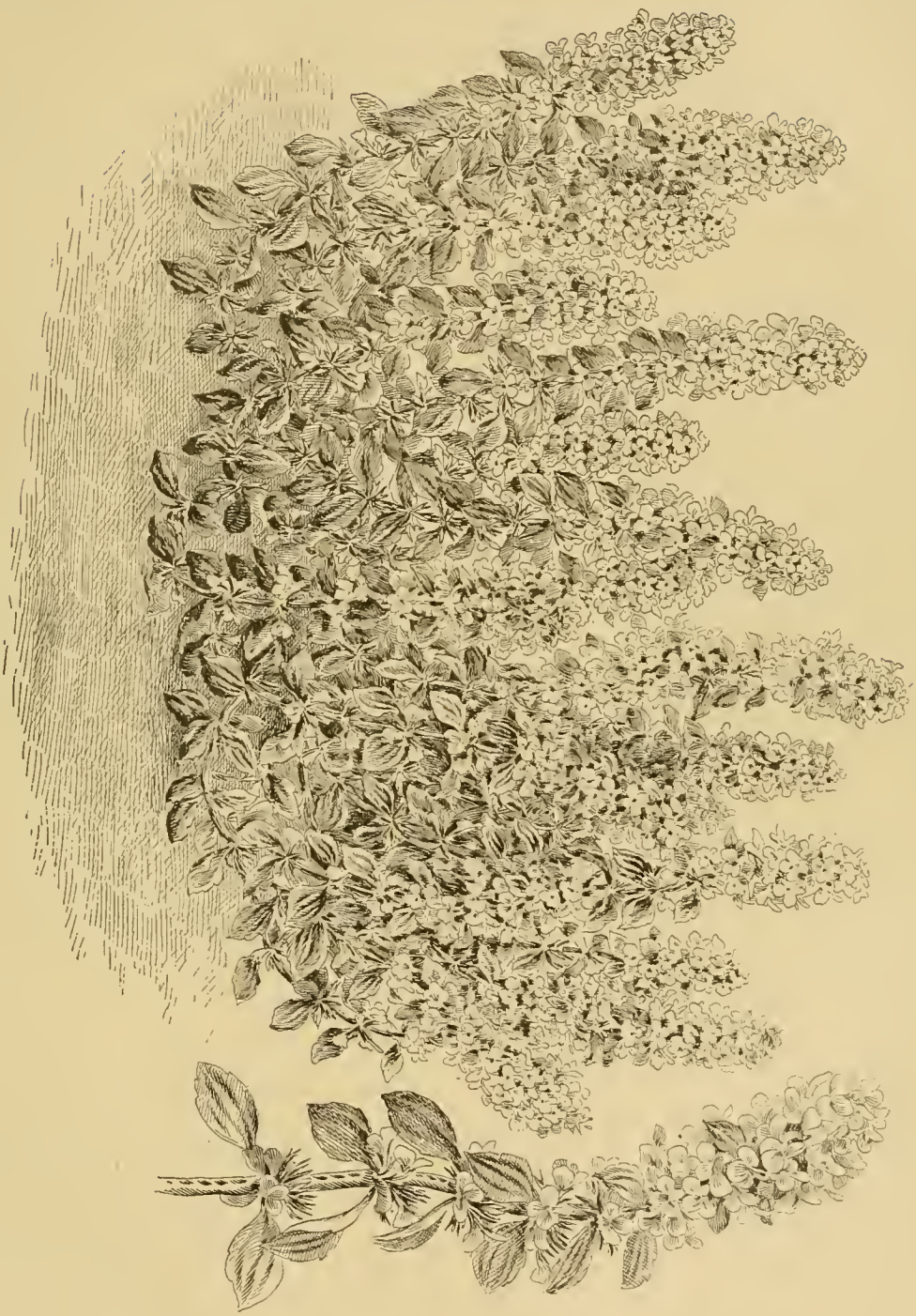
THE REDFIELD RASPBERRY.—Some of the Western newspapers are speaking very highly of a new raspberry raised by Messrs. J. Wragg & Son, of Waukee, Iowa. Very careful tests have been made between it and other varieties, and it is said to be far more abundantly fruitful than any of the varieties which have been tested.



DRACOCEPHALUM NUTANS.

FORESTRY IN SCOTLAND.—Through the kindness of Mr. Daniel Dewar, the forester of Lord Lovatt, in the north of Scotland, we have before us some interesting figures in regard to forestry in that part of the world. Although, of course, the great credit for the forestry work is due to the capitalists who furnish the money and the ground, nurserymen who furnish by their skill the young trees, receive a great deal of praise. The first nursery which was thus established for the production of seedling forest trees was started by James and George Dickson, on ground near Edinburgh. The kinds of trees used for Scotch forestry are chiefly Scotch fir and larch, and of these not less than ten million have been sold, one or two years old, in a single season. The annual output of forest trees from these nurseries is estimated at an average of five million yearly; this means that about 700 acres of trees have been planted every year in Scotland from trees grown by this single firm alone. It is said that the planting of forest trees in Scotland is now declining. This is not because all the ground that could be possibly planted has been occupied, but chiefly on account of the insecurity which landholders feel in regard to political land agitation. Nurserymen have, as a consequence, in a measure got out of the business, and what forest trees are on hand are being sold at a sacrifice in order to close out that particular line of trade. Trees hitherto have been sold at very low prices—the total cost of the trees, including planting, has been only about three dollars an acre, although this is considered the lowest price that such planting has cost. Until the disposition to plant forests grew extensively, sheep farming was the chief industry in the north of Scotland; but this department of agriculture and forestry will not go hand in hand together. Deer were formerly very prevalent in the north of Scotland, but these also were found to be enemies, as they eat down all the young trees. Formerly trees were planted very closely together, in which case it took 80 or 100 years before the forests would reach maturity. Since planting has been wide apart the trees reach sufficient dimensions for profitable timber in about 40 years, so that it was common for younger members of families to plant with the feeling that it was like an investment for them in older age. With the feeling of insecurity, on account of political agitations as to the propriety of parties owning land for any length of time, this feeling naturally does not strongly operate to favor forest planting.

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THE BOSTON PUBLIC GARDEN.—The Boston papers say they are never tired of bragging about the beauty of their public garden. A large number of sub-tropical plants are employed, which gives the flower garden a unique appearance. The most interesting point of interest this year, is the employment of the common coxcomb, for gardening effect. The brilliant colors make a show for long distances, and it is found that the plant rather thrives under our hot summer suns. Other novelties are in the shape of pineapple plants, which it is said are used with great effect. Mr. Doogue, the city gardener, receives great credit from the city papers for the admirable skill and judgment which he shows in producing the magnificent effects of which Bostonians are so proud.

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PACIFIC PLANTS IN THE EAST.—Many regret that the madrona, and other beautiful Pacific plants, are not seen in Eastern gardens. They nearly all fail, as it is believed, from the comparative dryness of the Eastern atmosphere. Plants have their vital powers of resistance weakened and fungus diseases follow. Though there are long periods of dry weather in many parts of the Pacific, the atmosphere has considerable moisture. In Eastern climates, the winter climate especially dries the moisture rapidly out of vegetation. Plants known as hardy do not die in winter so much from low temperature as from the loss of moisture, which the drying tendencies of our low temperature induces.

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ACACIA JULIBRISSIN.—The julibrissin is a native of the south of Europe, and like many beautiful trees and shrubs, is not very hardy beyond Southern New Jersey and Southern Pennsylvania. So far north as Philadelphia it manages to get up a little, the shoots dying back about one-half yearly. It seems, however, to do much better along the sea coast than inland. There are some very fine specimens at Atlantic City, N. J., which do not seem to suffer much from the winter. It is a beautiful tree, both in foliage and flowers, where it does well.

THE HENNA PLANT—LAWSONIA ALBA.—Says Prof. Wickson of the University of California: "We are indebted to Prof. Thomas Meehan, of Philadelphia, for the seed from which we have grown a few plants of this interesting and historical oriental shrub. It is described as a small, handsome and sweetly scented bush, first grown on the borders of Persia, and thence its use and cultivation probably spread westward into Africa and eastward to the several provinces of India. The use of the dye prepared from its leaves, pounded with catechu or lime, as a cosmetic is evidently of Mahommedan origin, being chiefly used by the women of that race for staining the hands, fingers, nails and feet. The simple decoction of the leaves also is frequently used in dyeing cloth and handkerchiefs; color produced is a shade of yellowish or redish-brown or red. The leaves are also said to have marked healing properties. We anticipate its chief value in California will be as a handsome ornamental."

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WILD FLOWERS OF WESTERN NEW ENGLAND.—A paper under the title of *Wild Flowers of Western New England*, read before the Holyoke Horticultural Society, by Edward S. Waters, of Springfield, Mass., has been published in a miniature pamphlet form, and probably can be obtained from the author. It is a model of popular teaching, in that it is devoid of the dry and technical details which so often repel instead of attracting the student. It is probable that much of the objection made to botanical names, comes from the pedantic use of them without occasion. Really, these names are no harder than those that are used in chemical, geological or even medical writings, and so far as medicine is concerned, the patient usually prefers a Greek name for his disease, and a Latin name for the medicine which is to help him. However, with such an easily understood essay as this is of Mr. Waters, no one could be found who would say that botany was anything else than one of the most pleasant of studies.

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BURNING OF THE SCRIBNER HERBARIUM.—The famous Herbarium of Prof. Scribner was lost in the great Washington fire. The loss of so many type specimens of grasses described by Prof. Scribner will be widely felt.

MRS. J. DUNDAS LIPPINCOTT.—The recent death of this distinguished lady, is a severe loss to the Small Parks Association of Philadelphia and the American Forestry Association, of which she was an active member. Her husband is the grandson of James Dundas, who was one of the principal supporters, in his time, of the Pennsylvania Horticultural Society, and he was the third or fourth to flower for the first time in America, what was then the greatest floral wonder of the time—the Victoria Lily. The finest specimens in Philadelphia of *Magnolia grandiflora*, English Hawthorn, and other famous trees, are on the Lippincott-Dundas grounds. Her desire to do good was superior to even her great wealth,—but her physical strength was not equal to the tax. Possibly no lady ever passed away in a great city, so universally mourned and missed for her good works as Mrs. Lippincott will be.

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RUSSIAN THISTLE.—One of the European saltworts, *Salsola Tragus*, of Linnæus, has found itself very much at home in Dakota, where it has been christened "Russian Thistle." The politicians of that section, like politicians elsewhere, proceeded at once on its becoming common to stamp it out utterly by an act of the Legislature,—the "compensation for the overseers," of course, "not to be less than two dollars a day." This was in 1890,—but the "Russian Thistle" still holds the fort.

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GENERAL AUGUSTUS J. PLEASANTON. — A devoted lover of gardening. General A. J. Pleasanton died at his country seat at Overbrook, near Philadelphia, on the 27th of July, in the eighty-sixth year of his age. He will be well known to many by his experiments with blue glass on the growth of plants. He was a graduate of West Point, being engaged mostly on topographical service during his active connection with the United States service. During the Rebellion he was the chief organizer of military bodies in the city of Philadelphia.

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FREDERICK O'NEILL.—Philadelphians will regret to learn of the decease, recently, of Mr. Frederick O'Neill, who for many years carried on the business of greenhouse heating in this vicinity. His son, Frederick H. O'Neill, will continue the business, conducted so successfully by his father for so long a period.

# GENERAL NOTES.

Crested Aspidium acrostichoides.—Mrs. W. A. Kellerman, Columbus, Ohio, sends a sketch of a crested frond of the Christmas fern, with the following interesting note concerning it:

"Although the ferns seem very set in their ways, admitting of but slight variation, here is a rough sketch of a rather interesting case of branching. There were two fronds growing on opposite sides of the plant, which seem to be almost *identically* abnormal. There was quite a tendency towards fascination where the branching began. The pinnæ of the little branches were not at all normal, having lost the characteristic little "thumb" entirely, and being very irregularly branched and serrated. I have several abnormal specimens of different ferns, but none which show such profuse branching."

It furnishes another illustration to many on record that there is no dividing line in the great workshop of nature, between leaves (or fronds) and branches. Fronds not only branch at times, but produce bulbils from which plants will follow. A curious fact is that these crested or branched ferns can be reproduced, with tolerable similarity, from the spores.

Fighting the Russian Thistle. — The *Salsola Tragus*, which has obtained the name of "Russian thistle" in the west, has been honored by a place in the United States legislation. An item of one million of dollars having been inserted in the annual appropriation bill towards ridding the west of this unwelcome emigrant. Whether this item will be allowed to stay there before the final passage of the bill is not known at this writing. The misfortune of legislation of this kind is that it originates under what is known in political slang as the "Hip, hip, hurrah" style of legislation. Somebody says we ought to do something, another says we must do something, and the final result is an appropriation to do something; but no one has the slightest idea of just what is to be done. The only way to get rid of the Russian thistle, or any other weed, is to pull it out before it seeds; but this industrial method is never employed—no doubt a million of dollars spent in employing persons to weed ought to get rid of the plant entirely; but the money will not be spent in that way—a vast majority will go to overseers, who will simply compel parties to pull out the weeds themselves, which they ought to be willing to do without having a paid overseer to compel them to do it. It was stated during the discussion that the money was only to follow up other laws, stringent laws, so it was stated, to be made by the States in which the weeds were growing.

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Forest Fires Again.—It is said that the recent tremendous forest fire in Atlantic county, New Jersey, got beyond control from the enormous amount of dead and dry underbrush. It will be in order to apply to the legislature for a few more thousand dollars to employ overseers to arrest the gunner whose wad, or the cigar smoker whose "stump" starts these disastrous conflagrations. Dry underbrush must be preserved at all hazards,—at least such seems to be the underlying thought with all forest legislation.

LARGE TOMATOES.—There always seems an interest attached to the production of large and fine fruits, and some question has arisen as to what is the largest perfect tomato that has been raised. Some one has placed one on the conductor's table weighing nineteen and a half ounces. This is perfectly round and smooth. Heavier ones have no doubt been raised having a curled or cramped form, and we have no doubt that some one could bring forward a finer perfect specimen than the one here recorded.

SHANKING OF GRAPES. — Those who grow grapes under glass are frequently troubled by what is know as "shanking." This is a species of decay which attacks the stem of the bunch near its junction with the main branch. When this occurs the berries never ripen. All treatises on the subject that the writer has seen, refer the trouble to something in the soil, or something in the manner of treatment ; but it has always seemed from analogy in many other cases that it must be the work of a fungus. By a paper which has recently appeared in the London *Journal of Horticulture*, it seems that the grape growers of that country have now proved certainly that it is the work of a fungus which they call *Polyactis cinerea*. It is said that the fungus is found on grapes in California as well as in the glasshouses of Europe.

The fungus is a very pretty one under the microscope, and is represented by the annexed illustration from the journal quoted.

TIMBRELL STRAWBERRY.—In the July issue appeared a note from our artist, Mr. Alois Lunzer, in relation to a large strawberry he had drawn for Mr. Reid, of Bridgeport, Ohio. Mr. Reid states that this variety is called the Timbrell, from a New York gentleman of that name from whom he purchased the entire stock two years ago. It is a remarkably healthy and productive variety—twenty-six full formed berries have been found on a single stock. Ten berries have been gathered which weighed twenty-five ounces, and would measure almost a quart and a half. We doubt whether any larger berries have ever been produced—if there have been let us hear about them.

A WILD STRAWBERRY FIELD.—J. M. H., Livermore Falls, Maine, says :

"By the side of Wilson Pond, Winthrop, Maine, is a five acre piece which was cleared of wood, lot comprising deciduous and evergreen trees, latter mostly pine, three years ago, and was burned over two years ago. This year it is a wondrous strawberry field, that is the part not given to hoed crops. The fruiting stems grow ten and twelve inches high, with many large berries on each stem. The ground was fairly red with berries which had ripened by the 26th of June, 1894. In three days there were picked six bushels of berries on stems which gave fifty quarts of hulled berries, and more than that amount were left to rot on the ground.

SHANKING FUNGUS OF GRAPES.

One woman picked ten quarts in twenty-four minutes. The plants seemed in beds and were as luxuriant as any cultivated ones. The berries were as large as many cultivated ones seen in the markets. Can any one tell how the seeds came there? There was a great variety of vegetation, *Adiantum pedatum*, grew in abundance."

EVENING PRIMROSE AS A VEGETABLE. — Mr. Alois Lunzer notes in regard to paragraph on *Œnothera biennis*, at page 76, vol. IV, on Evening Primrose as a Vegetable: "I can state that œnothera root is excellent for salads, and extensively grown in Europe, especially in Saxony, where it is known as 'Rapunzel.'"

# BIOGRAPHY AND LITERATURE.

## THE WILD GARDEN.

"I love the garden wild and wide,
Where oaks have plum trees by their side;
Where wood vines and the twisting vine
Clip round the pear tree and the pine.
Where mixed jonquils and gowans grow,
And roses 'mid rank clover blow
Upon a bank of a clear strand,
In wimplings led by nature's hand;
Though Docks and Brambles here and there
May sometimes cheat the gardener's care,
Yet this to me's a paradise
Compared with prim cut plots and nice,
Where natnre has to art resigned,
Till all looks mean, stiff, and confined."

—Allan Ramsay.

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Robert Douglas.—Robert Douglas is a household name to every lover of American gardening, and especially to those who are fond of evergreens. He was the first to make the raising of evergreens from seeds a great success in America. Until his time by far the greater number of evergreen trees planted in America were imported from the old world. *Garden and Forest* gives an interesting sketch of his history. He was born in England; but he was among the earliest of the pioneers who crossed the continent at a time when such a journey meant considerable hardship. When settling down he started from the Green Mountains in a buggy in the year 1844, and found himself in the middle of June in the country about Chicago. It was very difficult in the confusion to find accommodations, and he had to sleep on the floor of a hotel through early comers having pre-empted the dining-room tables. The next day he started for dryer land, and kept on until he reached Waukegan, about thirty miles from Chicago, where his horse gave out and left him, as the saying is, "stranded;" but there he made his home. His first great effort was, as a nurserymen, in raising apple and pear seedlings; up to that time very nearly the whole of the apple and pear stocks used in America were imported from the old world, although some smaller efforts had been made in Western New York. His experiments with raising evergreens continued through several years, until he discovered that regular moisture and partial shade were essential features of success. He made arbors, the shade of which was furnished by brush from the woods, and in this way managed to make the raising of evergreen seedlings a perfect success. He was the first to recognize the fact that the blue spruce of Colorado, then called *Abies Menziesii*, was much hardier than the supposed same species from the Pacific coast, and it was through this discovery by Mr. Douglas that the Colorado spruce became so popular. When Dr. Warder discovered that the catalpa tree of the west was a different species from the catalpa of the east, and much better fitted for a timber tree than that species, Mr. Douglas was one of the first to enter largely into its culture. They have planted over three million of trees in Scott county in Kansas alone. Not only is Mr. Douglas' name esteemed everywhere among horticulturists for the great good which he has done to the art of horticulture, but also for his personal worth and character is he as highly esteemed. Good humor and good feeling are strong points in his character, and although at present nearly eighty years of age, he still takes a warm interest in everything that concerns horticulture and humanity in general.

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Dimorphism in the Trailing Arbutus.—Professor Meehan having declined the honor of the first discovery of separate sexes in the *Epigæa repens*, in favor of Professor Lindley, in the "Botanical Register," it is still in order to make a further correction, by noting that André Michaux has an entry dated Morganton, North Carolina, that the plant had been in flower some days before the entry, April 2d, 1796, and that "some individuals had all the flowers without even the rudiments of stamens, while in other individuals all the flowers were hermaphrodite." It was probably noted by the Pilgrims when they landed at Plymouth Rock, and possibly by the ancient Norsemen.

# OSMUNDA CLAYTONIANA.

## CLAYTON'S FLOWERING-FERN.

### NATURAL ORDER, FILICES.

O. CLAYTONIANA L.—Frond smooth throughout, pinnate, with lance-linear pinnatifid leaflets; lobes obtuse, entire, the veinlets all once-forked, some 2 to 7 of the intermediate leaflets fertile. Common in low grounds. Fronds ample, 2 to 3 feet high, light green, interrupted near the middle by 2 to 4 pairs of fertile leaflets, which are so much metamorphosed as to resemble dense, compound racemes, densely covered with small reddish-brown sporangia. (Wood's *Class Book of Botany*. See also Gray's *Manual of Botany* and Chapman's *Flora of the Southern United States*.)

Few ferns have given more interest to polite literature than the original on which the genus was founded, namely the Royal Fern, *Osmunda regalis*. Why it should be called Royal Fern, and why *Osmunda*, have been equally the subjects of many critical essays. Although growing but two or three feet high in America, in parts of the old world it reaches eight, ten, and, it is said, sometimes twelve feet in height. If dubbed "royal" by reason of its vigor, as above the other species around it, it is well named,—though in other parts of the world it would be a dwarf in comparison with some others. Other species of the genus, fossiled, however, render it probable that in ancient times there were species of *Osmunda* that would dispute the claims of the now Royal Fern to royal honors on this account. In Colorado a species is found in the Laramie group of the Tertiary formation, named by Lesquereux *Osmunda major*, expressly from its supposed gigantic proportions. But this was long before the present order of things. It grew then among palms closely related to the Oreodoxæ, which are now found only in the West Indies and tropical America. It seems difficult to those not well versed in the science of Palæontology, to believe that near where the city of Denver now stands, tropical palms, and gigantic relatives of our *Osmunda*, flourished, and in the shape of lignite have left us the record of their lives. Even the Royal Fern itself was then in existence, but has managed to get through the cataclysm, and to-day is found in many parts of the four quarters of the globe,—a longevity that few other plants can claim. Impressions of it are frequently found in nodules of iron-stone, as long ago placed on record by the writers of the earlier part of our century.

Though *Osmunda regalis* was so named by Linnæus when introducing the modern double-name system of designating plants, he simply employed terms he found in use. The name *Osmunda*, in connection with this fern, occurs in the works of Dodonæus, a Flemish botanist, who wrote a work on plants, wonderful for that age—1583,—and even he refers it to another countryman who wrote a little before him—Lobel, 1576. It is possibly because of this early source for the name, that modern botanists have generally come to some unanimity in noting that "*Osmunda* is a name of Scandinavian origin, *Osmunda* being another name for Thor, the Jupiter of the Scandinavians." Gerarde, however, who wrote his "Herbal" some fifty years later, and who copiously uses Dodonæus' and Lobel's cuts without credit, gives no hint of the origin of the name, but says that the whitish centre of the rhizome is called "the heart of *Osmund*, the Water Man."

The species now illustrated, *Osmunda Claytoniana*, is much more limited in its geographical distribution than its royal brother, *Osmunda regalis*. It does not extend to Japan, as does another close neighbor, the Cinnamon Fern, *Osmunda cinnamomea*,—but is confined to the upper portion of the North American continent, extending down a continually narrowing district along the coast till it finds its boundary in North Carolina. Strange to say, it again appears in Nepal, on the northeast of Hindoostan. The wide gap between this portion of the East Indies, and a plant of North America, is one of the evidences of great geological changes; the plants which undoubtedly existed between these remote points having been wholly destroyed by some great convulsion in nature, or change in the condition of things. The fact that these and other ferns

have existed for untold ages, and yet continued unchanged through all the varying conditions that must have occurred, is a strong point made by those who do not regard changes in plants to be due to gradual modification through long periods, so much as to some inherent law not yet clearly unfolded.

The first knowledge botanists had of the species here illustrated, was from specimens sent to Professor Gronovius, from Virginia, by John Clayton, and from whose collections the latter prepared the "Flora Virginica." Clayton has been commemorated in our "Spring Beauty"—*Claytonia*,—"but yet," says Darlington, "he is entitled to more credit than has generally been awarded him." He was an English physician, and emigrated to Virginia in 1705, making specimens and studying botany during time taken from his professional pursuits. A number of papers on the natural history of Virginia appear in the Proceedings of the Royal Society of London. He is believed to have died in 1773, but just where and when is unknown. In the "Flora Virginica" it is recorded as "*Osmunda fronde primata;*" but when the binominal system was adopted, Linnæus designated it as *Osmunda Claytoniana*. It is, in that work, remarked as being "most singular of all the species, in having the fructification borne on various parts of the frond, a character which does not obtain in any other species." This character obtained for it the name of *Osmunda interrupta*, from Michaux,—a name now universally regarded as a synonym of this.

Those familiar with the Cinnamon Fern and the Royal Fern, will readily understand the difference,—as in these the whole of the later fronds are metamorphosed into spore-bearing spikes. It is one of the peculiarities of Clayton's Fern, that it has no fixed method of arranging its spores, though they are generally seen as in Fig. 3. These are formed by the complete rolling up of the green portion of the pinnule, so as to form berry-like sporangia, which, when mature, open vertically. Prof. W. W. Bailey, of Brown University, has, however, noted that often this species, as well as *Onoclea sensibilis*, the Sensitive Fern, bears the sporangia on the flat under-surface of the pinnule, just as a *Polypodium* would,—and just such a specimen has been selected for the illustration accompanying this chapter, as seen in Fig. 3. These exceptional cases are instructive, as showing the steps nature takes in leading to ultimate work. The pinnules at Fig. 3 are comparatively stronger when the reproductive force over-came the vegetative, but by no means as vigorous as those which may be called normal, as in Fig. 2.

We thus learn that varying phases of vegetative vigor have much to do with determining the manifestations of sex in plants. This has been before demonstrated, by the writer of this, in papers before the American Association for the Advancement of Science,—and it has become an accepted dogma with most vegetable biologists, that when the check to vegetative vigor, that ends in the triumph of the reproductive principle in plants, arrives, the female follows in the most vigorous, and the male or barren in the weaker lines. The whole appearance of our plant reminds one of a Polypody,—and with the relation noted between vegetative vigor, and the manifestations of sex, it may be concluded, that when the laws that decide when a fern should be simply a *Polypodium*, and when an *Osmunda*, shall have become thoroughly understood, vital power in relation with nutrition will be found the leading motor in the question.

Neither the Clayton Fern, nor any of its immediate connections, play any great part in the economy of modern human life,—but when we consider the lignite beds in which Osmundas have evidently borne their share in forming, we have little room to expect more from them. The spores are highly bituminous,—and it may be that when in the future man has exhausted the coal which nature provided for him, he may have advanced so far in knowledge as to take nature's own place in making the coal himself from these same ferns. A French writer says, the European form has the power of inducing sweet sleep and prophetic dreams,—but the method of using it for this purpose is not given.

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EXPLANATIONS OF THE PLATE.—1. A frond from a plant growing near Philadelphia. 2. The berry-like spore cases, as usually seen. 3. The interrupted or intermediate condition of the fructification.

# WILD FLOWERS AND NATURE.

## CHARACTER IN THE FOREST.

The forest seems a living multitude
Where every passion has its worshippers.
There stands deformity in gorgeous robes;
Here, grace and beauty, modestly arrayed;
Some proudly spread their branches as to show
How broad a shadow they can cast on earth;
While others meekly rise in taper form,
Seeking how near they can approach to heaven.
Some send a balmy fragrance far and near;
And some bear fruit and scatter plenty round;
Others are standing idle all day long,
Or yielding only sorrow-piercing thorns.

HENRY C. MOORHEAD.

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THE DIVISIONS OF FLOWERING PLANTS.—Flowering plants are divided into monocotyledonous and dicotyledonous. To distinguish these is one of the first great lessons in practical botany. Dr. Rothrock observes:

"Monocotyledonous plants are, as a rule, in such strong contrast with the dicotyledonous that their recognition is generally easy. Thus, there is but one seed-leaf to the embryo plant. There are no concentric rings on the stem, but instead (on a cross-section) one finds bundles of woody fibres, the ends of which show as small dots, as seen in the rattan and in the corn stalk. There is no cambium layer, hence, there is no distinctly separable bark. The parts of the flowers are usually in threes or in multiples of that number, and the leaves are conspicuously parallel-veined; that is, the veins run from the base toward the apex of the leaf in a nearly parallel direction. The lily is a good example of a monocotyledonous plant, which was once the recognized type of an endogen."

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THE GOLDEN-ROD.—The golden-rod, which has so many species representing it in the Eastern States, has also a member of the same family which gives considerable interest to the wild-flower scenery of the Pacific coast. A California paper says that in the mountainous region of San Fernando, a considerable quantity of one species is found. The remark is made that bees do not frequent the golden-rod for honey, but only for pollen. This statement is made about many plants, but it is a mistake, arising from the fact that bees when they start from the hive in the morning usually go either for honey or for pollen, and they continue to work all day on that which they start out to do; sometimes for days together, a bee will be collecting only pollen, and again for days together will be collecting honey. The difference can readily be determined by the loads which the bees are carrying on their thighs, if they are simply collecting pollen. The fact is that bees gather both honey and pollen from all flowers, only making separate tasks for each one.

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THE YELLOW DOG-TOOTH VIOLET.—Mr. C. F. Saunders suggests a change of name in the dog-tooth violet:

"Many times this spring, when in the haunts of *Erythronium Americanum*, I have been struck with the appropriateness of John Burroughs' suggested English name for this beautiful flower, *i. e.*, 'fawn lily.' Particularly when two or three of the sepals are curved back, and one of the mottled leaves stands more upright than the other (not an unusual attitude of the plant) does the comparison to a startled fawn seem extremely true. As the common name, 'dog-tooth violet,' is so inaccurate—the plant not being a violet—would it not be well to make Mr. Burroughs' substitute better known?"

The comparison is admirable, and, as an abstract proposition, the point well taken. In practice, so much confusion in literature and common use follows attempted change of names, that it is found better to endure a bad name than to introduce others, though better.

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RUDBECKIA HIRTA.—Note has been made in MEEHANS' MONTHLY of *Rudbeckia hirta* having sometimes a deep crimson base to the ray florets. Miss Florence Beckwith has found near Rochester, flowers with a double row of "ray" or ligulate florets. A "double" form might be raised from seed of it.

WINTER STUDIES.—Prof. W. Whitman Bailey, of Brown University, well observes that, "The student of nature is never without objects of study. Winter may narrow his horizon, but it does not wholly shut him in. From his very occupation he is an observer, and having once learned to keep his eyes open, he uses them at all times.

We have seen the dawn of a new life as it first came upon some college student. He has lived in the world, been part and parcel of it, and yet knew nothing of it.

Do those plants have a life in them? Are chemical processes going on in them? Are they affected as we, by heat, light, and the other forces of nature? Is there a plan in their structure?

The teacher holds up to a class so common and well-known a flower as our garden *Pelargonium*, and shows that we have had under our eyes for years a singular point of construction. The flower stalk is hollow. How comes this about? Why one division of the calyx, which in related plants (like *Tropæolum*) is a detached spur, is here a tube soldered down to the pedicel. Look at those stamens in the Grass of Parnassus, you perhaps see nothing queer about them, but the more acute observer shows you that they come up in place, and open fire, as it were, one after the other, like a line of skirmishers. In *Rhexia Virginica*, our meadow beauty, squeeze the anthers and see the pollen ejected as from a bellows! All these are summer things, but in winter there is much to engage our study. We never yet gave unlimited attention to any plant without learning something new about it; at least new to *us*. This does not by any means imply that one should at once rush into print with it. With age comes caution. There has been more seen than one always wots of. The chances are that those wonderful Germans have had the first say, but this need not deter us from looking. Suppose we *do* get ahead of them! What sweet *revenge*; much better than Johnny Crapaud longs for!

Out of doors there is much to see: the tracery of branches; the arrangement and pushing of buds; the drooping tassels of alder, birch, sweet-fern; the silky tips of willows; the red berries of ilex, or the blue ones of smilax; the rattling oak-leaf that will not fall. On every tree, too, on a damp day we will note the green slime of Protococcus. Lift off the scale of ice from yonder pool and dip up a vial of water; it will be full of organisms, a microcosm in which is enacted tragedy, comedy, melo-drama. And as for beauty of form what shall surpass the tiny diatoms?

Truly is he happy who has early wooed and won the heart of Nature. In sickness, in sorrow, in affliction, no touch is so kind as hers!"

To these apt suggestions, may be added that the writer of this has found some of his most instructive studies in the woods in winter. The root leaves of many herbaceous plants are at their best at that season, and the manner in which many plants protect themselves when at rest, shows to the best advantage at that season.

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ELDER TREES.—Our North American elder —*Sambucus Canadensis*, is more inclined to be a shrub than a small tree, although we occasionally find it in sheltered places, with trunks 18 inches to 2 feet in circumference. As we get further south, it makes much larger trunks, and grows taller, but never equals in size the elder of the Old World, which is *Sambucus nigra*. *The American Agriculturist* notices that along the Gila river, in Arizona, the wild elder of that region, known as *Sambucus glauca*, often reaches dimensions which will compare favorably with some Elder trees of the Old World. It gives an illustration of a specimen which is suggestive of an apple tree, of an age just coming into bearing. It says that the general characteristics are much more nearly related to the European species than the one usually found in the Atlantic States.

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SEEING BY NIGHT.—Nocturnal creatures assume night activity for some other reason than that they cannot see by day, or that they see better by night. The bat sees admirably in the brightest sunlight, as anyone knows who has ever teased one by poking a stick at it. It will open its mouth and make an angry grab at the stick, when it is not near it by several inches. Prof. Bolles says it is the same with the owl. They see perfectly in bright sunlight, and better at night than most creatures.

SWEET-SCENTED CENTAUREA.—It is remarkable that the great majority of plants have flowers that are neither conspicuous nor odoriferous, and this has become a consideration in discussions on the relations between insects and flowers, color and fragrance being assumed to have been accorded to flowers in order to render them attractive to insect visitors, under the effort for cross-fertilization. MEEHANS' MONTHLY has already noted that among the large number of species of violets, very few have odor, and among the numerous *Resedas*, only one, the common mignonette, is sweet. Among many hundred species of *Begonia*, only one has been worthy of being styled *Begonia odorata*, and *Centaurea odorata* is another illustration in a particularly large genus.

This latter has been rather overlooked by our flower gardeners, and it may be well to introduce it to their acquaintance, for the opportunity of doing which we are indebted to the *Bulletin of the Horticultural Society of Tuscany*.

SWEET-SCENTED CENTAUREA.

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WHY DO NOT MORE SEEDS GROW?—W. N. C., Binghamton, N. Y., says:

"It is well known that many plants produce seeds in numbers out of all proportion to the number of the same plant in existence. Orchids, for instance, produce innumerable seeds, yet but few plants spring up, each year. The question is, why are not more plants produced? Are many of the seeds abortive to start with? Or is it because nature does not care for them properly? Do the seeds of the summer flowers germinate as soon as they fall, or do they lie in the earth till the following spring? If the latter, would protecting the seeds permit more plants to be raised?"

Questions like these admit of no adequate solution. A story is going the rounds that an English peasant was complaining to a Bishop about the future prospects of support for his enormous family. "Tut, Tut!" was the comment, "the Lord never makes mouths, but he prepares something to feed them with. "Yes," the peasant replies; "but somehow, all the food is sent to your Reverence's table, and all the mouths to mine."—The Bishop is said to have been silenced; but in spite of this check, it must be undoubtedly true that if creatures were made so as to live by eating,—something must be as purposely made for the mouths to eat. This means that the final destiny of the vast majority of seeds is to be eaten, and not to grow.

If we can once disabuse our minds of the old notion that care for the individual, and not care for the whole, is the chief end of nature, we shall have a better chance to work out the problems C. suggests.

UNITED TREE TRUNKS.—Mrs. LaMance, Pineville, Mo., furnishes the following very interesting note:

"Four miles from Pineville, Mo., on the grounds of J. L. Parish, Esq., is a freak of nature so curious that if I had not seen it with my own eyes, I could scarcely have believed it possible. On the bank of Elk River rises a large tree that towers high above the neighboring trees. At the ground a solid, buttressed trunk appears, from eight to ten feet in diameter. A little higher than a man's head this high trunk divides into four lesser trunks, the two smaller of which are in themselves fair-sized trees, while the other two are far above the average size. Here comes in the queer part of the story. Of these divergent

trunks, the two larger ones are respectively an elm and a sycamore, while the two smaller ones are an oak and a sycamore. Above the union of common trunk, each tree in leaf, branch, and bark, is normal to its type. The trunk itself seems one homogeneous whole. I would not presume to say that close examination would not show in the bark from different sections of the trunk those peculiarities that distinguish the bark of one tree from that of another, but certainly these characteristics do not show on cursory examination, nor are there lines of jointure visible where the four trunks coalesce. I doubt if any one can point to a stranger growth than this—two sycamore, an oak, and an elm, all growing from one common trunk."

This meeting together of four youthful tree-trunks as they thickened with age is occasionally seen, but this is an unusually fine illustration. Each tree must, however, form its own bark, that is to say no one of them has been wholly enveloped by another. Hence a careful investigation ought to disclose a slight line where the incurving bark of each original tree meets.

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Disease of Almond Trees in California. — The *Pacific Rural Press* states that the almond tree in California is subject to a serious leaf disease, which causes the leaf to curl and have light brown spots, similar to those which appear occasionally on strawberry leaves. The disease is caused by a microscopic fungus. It is known, botanically, as *Cercospora circumcissa*. Several species of this genus follow Californian plants and trees even to the eastern part of the Union. An allied form of the *Cercospora*, *C. sequoiæ*, follows closely the mammoth tree of California, *Sequoia gigantea*. It is so destructive that out of thousands of trees planted in the eastern states probably not a hundred survive, and not more than half a dozen have grown sufficiently to get fame. The spores of the fungus come with the seeds, attack the young plants on germination, and continue their growth as long as the plants grow. Usually, in the East, the fungus absolutely kills the young trees before the second year; but sometimes vigorous trees will get several years of growth before they are seriously injured. On the grounds of the writer, only one poor specimen exists after 20 years of endeavor to get one to live. This illustrates the vicious character of this species of the genus, and it is no wonder that the California almond growers are alarmed at the progress of the other species.

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The Table Mountain Pine.—It is not many years ago since the "Table Mountain Pine," as it was called by Michaux, because of his discovering it in no other place than Table Mountain in North Carolina, was discovered in Bucks County, Pa., by Prof. Meehan, who has since then discovered it in numerous places in Pennsylvania. Indeed, it seems rather common, and it is remarkable that so distinct a pine should have been so long overlooked. Prof. Rothrock, in a recent number of "Forest Leaves," states that it is quite frequent in Fulton County. The Professor, however, wants to change its common name, and call it Poverty Pine,—the reason being that it does not grow only on Table Mountain, North Carolina; but, the name is part of its history,—this history would lose much of its value by the change of name. Although of no great lumber value, it makes a beautiful ornament in gardening on account of the beautiful rich crimson color of the male catkins in the spring of the year. But unlike many other pines it produces these flowers when quite young.

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Vancouveria hexandra. — Mr. Herman Dock, Philadelphia, calls attention to the fact that the *Vancouveria hexandra*, of the northwest coast, gives off a delicate vanilla scent, when drying. It is worthy of note that its relative, the "May Apple" of the eastern coast, gives off a strawberry odor from the ripening fruit.

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Rose—Augustine Guinoisseau.—An absolutely white rose has become popular among the florists of Germany, under this name, which is said to be a sport from La France. It is given out that it has all the good properties of this popular variety with purity of color added.

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Early Golden-rods. — Golden-rods commenced to open in the mountains of Berks County, Pennsylvania, on the 21st of July. Acres of floral sunshine gladdened the sight on that date.

# GENERAL GARDENING.

## AN ARABIAN MORNING.

The morn has risen clear and calm,
'And o'er the Green Sea palely shines,
Revealing Bahrein's groves of palm,
And lighting Kishma's amber vines.
Fresh smell the shores of Araby,
While breezes from the Indian Sea
Blow round Selama's sainted cape,
And curl the shining flood beneath,
Whose waves are rich with many a grape,
And cocoa-nut and flowery wreath,
Which pious seamen, as they pass'd,
Have tow'rd that holy headland cast—
Oblations to the Genii there
For gentle skies and breezes fair.

—THOMAS MOORE.

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CARNATION DISEASES.—There are two kinds of fungus diseases which are very annoying to the carnation grower; one is known as "rust," which attacks the leaves, and which is known to botanists as *Uromyces caryophyllinus*; the other is from some fungus which appears when in the mycelium or cobwebby condition, and which does not appear to have been properly identified. It attacks the roots, and so seriously injures the plant, that it usually rots before flowering. This fungus attacks the plants in the open ground. One plant may be noticed as having a green tint, lighter than the rest. In a few weeks a number of plants around these have the same appearance, and before the plants are ready to move from the open ground to the carnation-house, a space several feet in diameter may have all the plants of this lighter tint. All these plants will be found on examination to be attacked by this fungus, which has spread from one original centre. Its presence can be detected not only by the eye, but by the "mushroomy spawn," as gardeners would call it of some mushroom. All such plants should be discarded when planting the carnation-house.

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TWIG BLIGHT.— Dr. Cheston Morris, recently made an address before the Philadelphia Academy of Natural Sciences, on the twig blight among fruit trees, so remarkably prevalent this season. He ascribed it to the operation of the larvæ of a minute beetle, *Scolytus pyræ* which bore the twigs.

That young twigs when starting in growth in the spring die under the operation of this insect, is well known; but an examination of the severe trouble known as "fire blight" in the pear, and akin to which is the prevalent disease in other fruit trees, will show that that is something very different. The odor alone tells us that fermentation is going on, and the microscope reveals that bacterial fermentation is prevailing. Professor Burrill has demonstrated this point so clearly as relates to the pear, that no confirmation is needed. The twig blight in the apple and quince is slower in its fatal results than in the pear, and probably is referable to another species of bacterium. While a whole branch will seem to give way in a single day, it is often a full week before every part of an attacked apple twig succumbs.

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CLEMATIS VIRGINIANA. — Mr. Frank E. Lord, of Chicago, notes that all the plants of the native "Virgin's Bower" that he has seen in that vicinity are staminate, and so produce no seeds. As the bright silvery tails to the seeds furnish one of the chief beauties of the plant, propagators will have to raise their stock from hermaphrodite parents.

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DESTROYING POISON VINES.—Mr. Chas. G. Schrank, Philadelphia, desires to know how to destroy poison vines. Any plant, poisonous or otherwise, can be easily destroyed by being cut off just beneath the ground after the young leaves have pushed, and before they are thoroughly mature.

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THE DAHLIA STEM-BORER.—Mrs. Seliger has discovered that the borer, which plays much havoc with the stems of dahlias in that section, is the common corn-stalk borer, *Gortina nitele*. This upsets the old notion that insects are good botanists. They have made a big jump from the Indian corn to a dahlia stem.

TECOMA GRANDIFLORA.—*Tecoma*, or as it is sometimes called, *Bignonia grandiflora*, is a native of northern Asia. *Tecoma radicans* is a native of the American continent. The two are as different as day is from night, as any one may see who compares the calyx in each species, aside from other characters. No botanist has ever dreamed of uniting them. One of the conductors spent a half day of valuable time in pointing this out to Mr. Kift, on the grounds of the Meehan nurseries. Mr. Kift, Jr., now sends us a marked copy of the *Village Record*, of West Chester, with a long article, which the following extract shows the pith of.

"When planting the *Bignonia grandiflora*, one very important matter must be borne in mind. This variety is a branch sport of the old *Bignonia radicans*, and not as hardy as the original. *Bignonia radicans* is generally grown from root cuttings, and grows quite readily in this way. *Bignonia grandiflora* is mostly grown by grafting. It can be propagated, however, by branch cuttings just as easily."

Mr. K. is evidently very proud of "being of the same opinion still."

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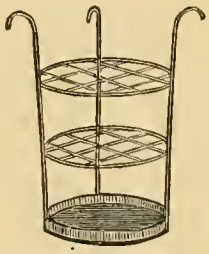
CUT-FLOWER RACK. — A very helpful contrivance is noticed by the *London Journal of Horticulture*, as coming into favor with ladies who are fond of cut-flowers, in the shape of a galvanized wire rack, by which all the flowers may be easily taken out of the vase, and the water changed, or the flowers sorted over. The vase and the rack must, of course, be fitted to each other, but it ought not to be difficult to invent an adjustable one of similar character. The rack could be suspended on a pair of cross-bars.



BRYOPHYLLUM CALYCINUM. — Mrs. John Dickson, of Moylan, Delaware Co., Pa., presents a remarkably healthy specimen of this Mexican sub-succulent shrub, which has become naturalized in Florida, and there received the common names of "Life everlasting," "Live-for-ever," and some others. It belongs to the same family of plants as the stonecrop and houseleek (*Crassulaceæ*), but is more shrubby and leaf-like in character. When the leaves are left to dry, buds will proceed from the ends of the veins, and good plants result. It is from the scattering of the leaves in this way that the plant is so common in a wild state in southern Florida. The botanical name, *Bryophyllum*, is derived from this character,—*Bryo*, bud—and *phyllon*, leaf. Some will call these Greek terms hard, but it seems no harder to say bryo, as part of the name of a plant, than to say "embryo" in every-day language,—while "life everlasting" is a common name given to hosts of different things.

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## MY GARDEN.

My garden stretches not so far,
But one can see it's every side;
Yet in its bounds sweet pleasures are,
In every nook fresh beauties hide.

Blue clematis my porch entwines,
Sweet honeysuckle clasps it round;
One corner boasts its Passion vines,
And graceful ferns beset the ground.

*Clematis crispa* crowns the fence,
Nasturtiums gay its posts embrace;
And shaded by the elm tree dense
The grateful pansy lifts her face.

Like sentinels fair roses stand,
In June's bright sun superbly drest;
Near by, Paulownia lifts her hand
In benediction o'er the rest.

Scarce waking from her April dream
The flamed azalea lights her torch;
Actæa's ivory berries gleam
When August suns her neighbors scorch.

Each day some tree, some shrub, new blown,
Unfolds to me its secret dear;
Each month brings glories of its own,
As slips away the busy year.

From spring's first breath till winter's wrath
Remorselessly blots all from sight,
I daily stroll my garden's path,
And daily find some new delight.

Think not, dear friend, that I am blessed
With some rich, broad, expensive spot;
Such luxury is all compressed
Within a common city lot. H. K.

PLANTATION OF PALM TREES.—Those of us who are only familiar with forests of what we know as the hard woods, in other words trees with the ordinary forms of foliage such as oak and ash, or even the more shining leaved evergreens of the tropics, have no idea of the peculiar sensation which arises on seeing for the first time, forests composed wholly of palm trees or other endogens. The accompanying illustration of a plantation of date palms, as they are seen growing in the vicinity of Tunis, gives a little idea of their peculiarities. Judging by the growth of the date palm in our hothouses, these palms must be of immense age. We have in the vicinity of Philadelphia, plants in tubs that have been growing in very warm houses for nearly a hundred years, yet have trunks not more than six feet high. Of course they would grow with more rapidity in their native country, where there would be more room for the roots to spread and get a greater abundance of food than is possible in a tub ; but still with all this allowance such very tall trees must have taken many years to grow. The writer once saw in New Orleans, a tree that had a trunk as high as a two-story building, and the palm leaves made a very good shade over the house. He was told that that tree was believed to be over two hundred years old. It was one of the sights which the lovers of trees were generally taken to when visiting that city. The illustration is taken from a very interesting serial, *Natur und Haus*, published in Berlin.

PLANTATION OF PALM TREES.

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ROSE—CRIMSON RAMBLER.—Perfectly hardy climbing or rambling roses are not numerous. The Polyantha rose, a recent introduction from Japan, is found to be able to resist our coldest winters. The name, *Polyantha*, refers to the many flowers on a bunch. It is not uncommon to be able to count seventy or more in a cluster. A crimson one, under the name of "Crimson Rambler," has recently been brought to notice by Ellwanger & Barry.

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LICORICE IN AMERICA.—Ever since our first colonists settled, attention has been given to the cultivation of licorice. In looking over the records of the past, attempts are frequently referred to ; but no great success recorded. Failure seems to be more from the want of care in selection of proper soil than anything else. In heavy clay soil, leaves burn in the summer time, and the growth is consequently checked. If the deep open soil could be chosen, and a locality where the summer heats were not excessive, there might be some success. A very profitable field is open to the parties who wish to succeed.

THE JAPAN UMBRELLA PINE. — This interesting coniferous tree from Japan, known botanically as *Sciadopitys verticillata*, is of extremely slow growth while young, though growing rapidly after it obtains some age and strength. Some question has been raised as to where in our country the largest specimen is to be seen. "*Gardening*" states that on the grounds of Mr. Charles A. Dana, at Queens, on Long Island, they have a specimen 13 feet high by 5 feet wide. On the grounds of the conductors of MEEHANS' MONTHLY is one 11 feet, by

THE JAPAN UMBRELLA PINE.

4 feet wide at the base. As an illustration of the slowness of the early growth of this tree, it may be said of the latter specimen that the seeds were brought from Japan on Commodore Perry's expedition, in 1853, during the incumbency of President Fillmore. It took nearly 20 years to get but a few feet in height; during the last nine or ten years, however, the average rate of growth has been about a foot a year.

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THE EFFECTS OF COLORED GLASS.—It is interesting to note that while the efforts of the late General Pleasanton to show that blue colored glass had a beneficial influence on plants growing beneath it seem to have failed to make any permanent impression on American cultivators, that just about the time of his death, the English cultivators are believing they find good effects from it. Before us is a lecture by Professor Henslow, on the effect of light on the germination of seeds. He tried a large number of experiments himself, and stated that violet colored glass had been used by a London grower of market flowers, and that under this glass his flowers bloomed fourteen days earlier than they would under other circumstances; but Prof. Henslow remarked that while he had flowers in this way the plants themselves were undoubtedly weakened. He states as the result of his experiments that so far as the vital power of plants were concerned, colored glass of all kinds had an injurious effect in various degrees.

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STEMMING CUT FLOWERS.—The Camellia, which a half century ago, was the leading flower, has wholly disappeared from the roll call of the florist, mainly because the flowers required stemming. It is characteristic of American enterprize, that those kinds of flowers that require artificial stems have been abandoned,—and in the case of roses, carnations or similar plants that could be improved by selecting seedlings, kinds have been produced that give long stems by nature. "Stemming" is practically abandoned by the American cut-flower-lover.

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HALESIA PARVIFLORA.—Mr. A. S. Fuller, Ridgewood, New Jersey, believes this should rank as a good species. Besides the flowers being small, the seed vessel is long and narrow, while the flowers have a pinkish tinge not common in the ordinary *H. tetraptera*.

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VERBENA ANGUSTIFOLIA.—A correspondent from Hamburg, Pa., reports this pretty species of vervain to be a very bad weed in that section. Like most species of plants that fertilize themselves without the aid of insects, it is a prodigious seeder.

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WALL-PAPER FLOWERS.—There seems to be no reason why the conventional flowers and plants used to ornament wall-paper, might not be copied from natural flowers, instead of being exaggerations which we so often find them

to be. Take, for instance, the oak, which is often represented with its acorn and leaves coiling around as if it belonged to a twining plant. There are other real climbers which would be just as ornamental, and quite as effective as these monstrosities. Through the kindness of Baron Mueller, of Melbourne, Australia, we have been furnished with samples of panel papers, which are models of botanical

PANEL PAPER, WITH THE BLUE AUSTRALIAN LILY.

accuracy, and at the same time would be pronounced as of the highest type of artistic work. We give an illustration of one of these, in the hope that the hint may be taken by lovers of art in our own country. The plant illustrated is the well-known blue Australian lily, *Nymphæa cærulea*, which is now often seen in gardens, grown in small tubs of water, and also in the lakes and ponds of our large aquariums.

## FRUITS AND VEGETABLES.

TRAINED PEACH TREES.—Peach trees, in England, are trained on walls having southern aspects, and in this way get heat enough to mature. The branches are skillfully trained, so as to cover the whole surface of the wall with branches a few inches apart. In some cases glass fronts are placed before the walls, to give additional heat. There is one tree, in the north of England, treated in this manner, which is considered a great curiosity in that country. It covers a wall twenty-three feet long by seventeen feet deep, and four hundred and twenty good sized peaches have been gathered from the tree, in a single season. The variety is the Royal George; and the age of the tree is fourteen years. In this special treatment of the peach everything that can aid in the health and growth is of course assiduously attended to. Inferior fruit is taken out when quite small, and no one fruit is allowed to crowd upon another. Under these circumstances the fruit produced is remarkably fine, no one being seldom less than six inches, and many reaching eight inches round, while the flavor is correspondingly delicious.

DISEASE IN CHERRY TREES.—In America, the Morello class of cherries is particularly liable to be attacked by a disease which we commonly know as the "plum knot." This is now understood to be caused by a minute fungus. *The London Gardeners' Chronicle* notices that a fungus disease, which, by its description is very much like that above referred to, is attacking the cherry in the old world. Branches die completely and suddenly above the point attacked, giving the appearance just as it is with us, of having been stricken by frost or lightning. After a careful examination they have discovered that it is caused by a minute fungus, just as in the case of our trees; but they consider the fungus which causes their trouble very different from that known to operate here. They call it *Monilia fructigena*.

THE HAMPTON COURT GRAPE VINE.—This grape vine is 126 years old, is remarkably healthy, and is bearing 1200 bunches this season, each of which will weigh over a pound.

MUSHROOMS.—It is remarkable how widely the edible mushroom is extended over the world. In the early explorations of Colorado, the writer has found them of large size ; as it seems to him in recollection, though not actually measured, larger than good sized saucers. A Florida paper before us, states that they are extremely common in certain seasons in that state, and a suggestion is made that with a little care they might be made one of the most valuable of the industrial resources of the vegetable grower and cultivator. When as much attention has been given to the cultivation of the mushroom in this country as it deserves, they certainly will afford profitable marketing. They require very nice conditions in order to succeed well, but a very little intelligent practice will enable one to soon get the mastery of these special conditions. In the old world they have them in abundance in cultivation the whole year round. Until recently it was necessary to make the artificial mushroom beds in sheds, cellars, caves, or under some building where they might be protected ; but now they grow them in England, in a very profitable way, entirely out of doors. The *Gardeners' Chronicle* gives an account of one person, who has mushroom beds, which, if put along end to end, would extend to fully one-half a mile. These beds are started in October, and by the first week in January, they have mushrooms to gather. The first pickings from these beds at that time, giving about 91 pounds. By the middle of February, although pickings had been continuous, they could gather 664 pounds,—these gatherings being made twice or three times a week. This, however, can only be accomplished where there is an abundance of stable manure at command. 500 bushels of spawn were placed in these beds in order to start them—the cakes being broken into pieces of six to each cake, and pressed in about six inches apart over the whole surface. The beds are made in succession, and in this way they have mushrooms up to the end of June. It is said that mushrooms grown in the open air this way are much heavier and every way better than those grown in sheds or houses. The beds are made under orchard trees, in connection with the growth of apples, pears or plums. In order to preserve from frost, the mushroom beds are covered rather thickly with litter. In the colder parts of our country this method could not probably be pursued, but in states south of the Potomac where the winter temperature is by no means severe, there seems to be no reason why this open air mushroom culture might not be carried on as a very profitable element in vegetable and fruit growing.

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COGSWELL'S DWARF CHERRY.—Mr. E. D. Cogswell, of Detroit, Mich., sends a branch of this cherry which he is distributing. Botanically it belongs to the *Cerasus pumila*, and as MEEHANS' MONTHLY has said before, it is in the line of an improvement which deserves encouragement. This species of cherry usually grows as a bush, and sometimes not even doing more than spreading and rooting along the ground; but this variety makes a tree five or six feet in height, and is remarkably productive. Though we have seen cases of the sand cherry, as it is commonly called, making small trees, nothing like the great productiveness of this one introduced by Mr. Cogswell has come under the observation of the conductors. It is, of course, not a cherry to be compared with the ordinary garden cherry. There will yet be found astringency in the fruit; but this must have been the case originally with the wild cherry of our gardens, and there seems to be no reason why great improvement might not follow in the selection from this species as well as that. This particular one was selected from 300 seedlings by the introducer. It will be valuable for culinary uses. The fruit ought to have a good place in pomology.

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ROOTS OF THE STACHYS.—A new vegetable has been introduced from China, commonly called Chorogi, although its name does not seem to be much easier to pronounce than its botanical name, *Sieboldii;* yet we have tuberous species of *Stachys* in our own country, that produce larger tubers, and are probably quite as good. One especially known to botanists as *Stachys Floridana* ought to be quite as good as its Chinese relative. The Horticultural Bulletin of the Cornell Agricultural Experiment Station, gives a sketch of it. As figured, it has the appearance of a huge caterpillar of some three inches long and about half an inch wide, by reason of its necklace-like appearance.

IMMEDIATE EFFECT OF POLLEN ON FRUIT.—Mr. Willard N. Clute says: "In MEEHANS' MONTHLY for May, 1894, the statement is made that 'pollen has no immediate effect on fruits.' If this always holds good, how shall we account for the crossing of squashes and pumpkins? Here is Darlington's testimony on the subject, taken from "American Weeds and Useful Plants." 'When grown in the immediate vicinity of squashes, the fruit of this variety [the pumpkin] is liable to be converted into a hybrid of little or no value. I have had a crop of pumpkins totally spoiled by inadvertently planting squashes among them, the fruit becoming very hard and warty, unfit for the table, and unsafe to give to cattle.'"

The reply to this must be that even so acute an observer as Dr. Darlington was mistaken. He took coincidences for causes, as many of us are apt to do at times. He made no actual experiments. Direct experiments have been made resulting in proving that our garden plants of the cucurbit family will not cross.

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A LARGE GRAPE-FRUIT TREE.—A variety of the *Citrus* family is extensively grown under this name in Florida—the name being derived from the fruit growing in grape-like clusters. In California, the same fruit is grown under the name of Pomelo. A correspondent of the *Florida Farmer and Fruit Grower*, states that it is one of the most profitable of all of the *Citrus* family. He describes one tree grown by Mr. J. R. McDonald, of Plant City, as something enormous, and worth traveling miles to see. The size of the tree is not given, although it is referred to as the "Giant;" but it is said that 67 crates of the fruit were packed from it, and sent to New York recently,—the gross proceeds of the sale being $292.00—of course, expenses of shipment have to be deducted; but it is said that the yield, clear of every expense, was $83.75. A pretty good profit from a single tree.

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INSECTIVOROUS INSECTS.—It is not as widely known as it might be that most of the particular little insects known as lady-birds feed on other insects, and it is wise to encourage their presence in gardens as far as practicable. In California an insect bearing the name of *Vedalia cardinalis* has been imported from Australia, especially to keep down the orange scale. It has been found remarkably effective. Mr. Thomas H. Douglas, of Waukegan, Ills., writes that the common lady-bug of that section, rather smaller than Vedalia, is doing excellent work among the scale on the fruit trees of that section.

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HEALTHY BARK ON TREES. — After a few years, nature does her best to get rid of the external bark. Few operations are more useful in comparatively old orchard trees than to scrub or wash the bark in the winter season. Some few people think that this old bark in some way protects the trees from low temperature; but any observer may note that it is not until a branch is several years old,—in the apple tree, for instance, it is ten years old before the rough bark appears, and if protection from cold be the province of old bark, the young branches would require that protection much more surely than the older and stronger portions of the tree.

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RIPE WATERMELON.—The Southern *Stockman* states that, in the South it is easy to tell whether a watermelon is thoroughly ripe or not, by drawing the thumb nail slightly over the melon, so as to scrape the thin, green skin. If the edge of the scar is ragged and the rind under the scar smooth, with a glassy appearance, the melon is ripe; but if the edges of the scar are smooth and the skin does not come clean off, the melon is not sufficiently advanced. It is said that a little practice on two melons, one ripe and the other unripe, will soon familiarize one with the knowledge required.

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A DOUBLE PEPPER.—A "bullnose pepper" was gathered the past summer, at Newman, Georgia, which had another perfect seed pod inside of it. Remembering that a seed pod is only a series of stem and leaves, transformed into floral parts, the explanation of the double pepper pod is clear. There was a renewed advance of the growth wave, resulting in the formation of another series of stem and leaves, which have in turn been transformed as the first series was. The similar cases of a rose growing out of another, and of small oranges growing out of larger ones, are familiar illustrations.

# BIOGRAPHY AND LITERATURE.

## AN AUTUMN MORNING.

Morn on the mountain, like a summer bird,
Lifts up her purple wing, and in the vales
The gentle wind, a sweet and passionate wooer,
Kisses the blushing leaf, and stirs up life
Within the solemn woods of ash deep-crimsoned,
And silver beech, and maple yellow-leaved,
Where autumn, like a faint old man, sits down
By the wayside a-weary.

LONGFELLOW.

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FLORA OF MOUNT DESERT ISLAND, ME.—By Edward L. Rand and John H. Redfield. Published by John Wilson & Son, 1894.—Botanists are mainly born of local "Floras." Interest is excited by what is seen around, and the local "Flora" enables the inquirer to easily ascertain the name and complete history of any plant in question. It is not so easy a task when a huge volume is searched. The limited number to be searched among, is just so much of a gain to the student. One soon learns to feel that he is really a botanist when he is able to work out the history of a plant by himself. This truly beautiful Flora of Mount Desert Island is, therefore, a contribution to the advancement of general botany, as well as a boon to the summer traveler, who yearly more and more is coming to understand that vacation time need not be an utter vacancy in human life, and natural history, and especially botany, is becoming a leading summer pleasure. Visitors to Mount Desert Island will be thankful to these ardent botanists, Rand and Redfield, for this contribution to their enjoyments. A large geological map, prepared by William Morris Davis, is attached to the book.

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BOTANICAL NAMES.—Botanists have found that names which have no relation to the characters of the plants they bear, are less likely to mislead than those which have connection, and hence it is a custom to give the names of new plants to the discoverers, or in honor of some individual. Prof. Ed. Greene, notes that one hundred and twenty-six American genera commemorate American citizens. Washington and Jefferson are in the list.

THE OSMUND FERN.—The story of the Osmund Fern as told in another column, will yet admit of extension.

Anne Pratt, in her History of British Plants, connects this with a legend, as follows. "A waterman of this name dwelt at Loch Tyne, and on one occasion, when bravely defending some of his family from the cruel Danes, sheltered them among the tall branches of this magnificent plant, which is more like a shrubby or tree fern than any other of our native species." These stories are all pretty enough to be worth recording,—but it might be worth remembering that Gerarde's "Water Man" need not necessarily be a modern "waterman," and how his "Heart" came to be associated with the central substance of the fern's stem needs to be told before consistency is reached.

Wordsworth seems to have wholly another idea of the origin of the name in mind. In *Parnassus* he says: "Fair ferns and flowers, and chiefly that tall fern, so stately, of the Queen Osmunda named." It is at least as probable that the fact of the impression of the fronds of this fern in iron ore, nodules of which were in the middle ages known as "*Osmonds*," must have been noticed by the ancients, who were more observing than they get credit for,—and would readily account for the name. It would be the "Osmond Fern."

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THE "SOUTHERN FLORIST."—A 16-page octavo monthly magazine, under the title of *Southern Florist and Gardener*, has been issued at Chattanooga, Tennessee. The "Hints for the Month," adapted to Southern horticultural wants, seem to be very well prepared, and this useful feature, with other embellishments, will, no doubt, make the new venture welcome to garden lovers in the South.

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BOOK OF ORCHIDS.—Mr. Geo. Hansen, of the Agricultural Experiment Station, at Jackson, California, will soon issue a book on orchids and orchid culture, in which branch of botany and horticulture he is an expert.

GINGER.—Mr. W. Faucett, Director of the Public Gardens, Jamaica, has made an admirable report on the collecting and curing of ginger in Jamaica. It appears that very much of the value of ginger depends on the method of curing. After being scraped it should be kept from dampness, and be exposed to the hot sun until hard. The slightest mildew will injure it, and if put away spongy, it is likely to mildew. The best ginger is prepared late in the season, when there is constant sunshine. When dug, the roots are at once scraped and peeled with thin knives especially imported, and known as ginger knives. They are then washed once or twice, and turned out on mats to dry. Some varieties are said to be better than others. The best ginger brings profitable prices. Poor ginger hardly pays. It is said that there are two distinct forms of the plant, one producing what is known as yellow ginger, and the other blue ginger. The yellow is regarded as being the best. A ginger patch has to be planted every year. They commence planting at Christmas time, and continue until March and April; from thence to December, it is being harvested. Small pieces of the root stocks are planted in the same manner as we plant potato sets. In judging ginger, the more brittle it is the better the quality, and yet care has to be taken to keep it from being broken, which depreciates its value. Lime juice is often used in washing the roots, to make them look whiter, which insures a better price; but the quality of such ginger is said to be inferior. Ginger is one of the principal paying agricultural crops in Jamaica.

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REVISION OF THE NORTH AMERICAN SPECIES OF CACTUS, ANHALONIUM AND LOPHOPHORA.—Prof. John M. Coulter has arranged for the United States Department of Agriculture, a catalogue of the portion of *Cactaceæ*, which are known in gardens as *Mammillaria*, a list which will be extremely useful, as one now has to go through numerous publications to get a view of the whole genus. Linnæus embraced under the genus *Cactus*, everything that is today known under the popular term of Cactuses. Later authors have divided the genus into *Mammillaria*, *Echino-cactus*, *Echinopsis*, *Cereus*, *Opuntia*, and some others. In this revision Prof. Coulter has dropped the name *Mammillaria*, and taken the name *Cactus* for what we have known as *Mammillaria* heretofore, reducing the whole list of Mammillarias to synonyms. He thinks Linnæus had *Cactus Mammillaris* first in mind when he established the genus *Cactus*, but, as he placed what we now know as *Melocactus communis*—the Turk's-head Cactus—as species No. 2, following *C. Mammillaris* in his system, Prof. Coulter will scarcely get many followers in the belief that Linnæus ought to be made responsible for the babelish confusion that would follow if we tried to root the word *Mammillaria* out of literature at this time.

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A CHILD'S STORY OF THE PANSY.—The flower has five petals and five sepals. In most pansies, especially of the earlier and less highly developed varieties, two of the petals are plain in color and three are gay. The two plain petals have a single sepal, two of the gay petals have a sepal each, and the third, which is the largest of all, has two sepals. The fable is that the pansy represents a family, consisting of husband and wife and four daughters, two of the latter being stepchildren of the wife. The plain petals are the stepchildren, with only one chair; the two small gay petals are the daughters, with a chair each, and the large gay petal is the wife, with two chairs. To find the father one must strip away the petals until the stamens and pistils are bare. They have a fanciful resemblance to an old man with a flannel wrap about his neck, his shoulders upraised and his feet in a bath tub. The story is probably of French origin, because the French call the pansy the stepmother.

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EDMUND WILLIAMS.—Mr. Edmund Williams, of Montclair, N. J., died on the 12th of July, at the age of sixty-three years. He was one of the more intelligent class of lovers of horticulture, who have done so much during the more recent past to elevate horticulture to a position among educated people. His loss to advanced horticulture cannot well be replaced.

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FULLER'S GRAPE CULTURIST.—Though first published thirty years ago, Mr. A. S. Fuller's "Grape Culturist" has passed through so many editions that the plates have been worn out, and the author is now engaged on a revised issue of the work.

# GENERAL NOTES.

WOMEN IN GARDENING. — Gardening taste has always been conceded to be strong in women. They have always been among the best patrons of gardening. But as a matter of business or profit, man has hitherto occupied the field. Women are now legitimately claiming a share. This magazine has recently given a few instances. Here is another from an English source :

"It is said that Lady Carlisle is training an entire staff of women to take charge of the extensive grounds of her fine York estate. She claims that women, by right of their superior taste and judgment in everything pertaining to floriculture, should be, and are, better adapted to the lighter work of garden making than are men ; and with the tendency of the age, which is to give women the first chance at everything, she is trying her experiment on a wholesale scale."

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A LOVER OF FLOWERS. — The writer was caught on a trolley car, near Pottstown, Pennsylvania, in the great electric storm which burst over that city in the middle of July. While the rain was still pouring, though the height of the storm had passed, a gray-headed old man was seen in his garden trying to steady an umbrella against the wind and rain, with one hand ; and with the other raising a bunch of hollyhocks which had been prostrated, and, with one end of a piece of string in his mouth, trying to twine it about the stake which had before supported the flowers. An ardent lover, protecting his adored one, could furnish no lovelier picture.

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THE FRINGED GENTIAN. — It is too much the fashion to give places in our picture galleries to the "great unknown." The true lover must have a place in his album for dear friends. So the plate and chapter on the fringed gentian, which will appear in next MEEHANS' MONTHLY, will be a treat to every true lover of wild flowers.

PROTECTING THE FORESTS AND DESTROYING WEEDS.—The *Friends' Intelligencer* takes exception to the remarks in MEEHANS' MONTHLY that the true line of public policy should be in the direction of getting rid of the causes of forest fires—dead underbrush, than in the line of preventing this brush from taking fire. And so far as weeds are concerned, it believes a million of dollars expended by congress for the "extirpation" of the Russian saltwort or "thistle," would be wise. But MEEHANS' MONTHLY still holds to its belief that all the legislation we have had has not saved a single forest fire, and to its opinion that there will be just as many "Russian Thistles" to fight after the million of dollars has been expended, as before.

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THE MOLE-PLANT.—Wonderful stories are told about the mole-plant, botanically—*Euphorbia Lathyris*. It is said that it kills all moles that come within many yards of it. This has been said of many other plants at various times. On the grounds of the conductors this particular mole-plant has been growing annually for a number of years, usually coming up from self-sown seeds. We have no evidence that it ever destroyed a mole—to be sure we do not remember of a mole being near the plant any more than any other plants that are growing with it ; but the moles certainly burrow in the grass pathway which runs along within a few feet where the mole-plants are growing.

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THE BRITISH MUSEUM.—The growth of this educational institution is phenomenal. An adjoining five acres on which to erect additional buildings has recently been purchased for $1,000,000.

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ULMUS RACEMOSA.—Prof. C. P. Wheeler, of the Michigan Agricultural College, notes that the Thomas elm, *Ulmus racemosa*, is the rock elm of New England.

# GENTIANA CRINITA.

## FRINGED GENTIAN.

### NATURAL ORDER, GENTIANACEÆ.

GENTIANA CRINITA, FRŒLICH.—Stem from one to two feet high, terete, branched; branches opposite, axillary, erect, four-angled and slightly winged. Leaves one to two or three inches long, ovate-lanceolate, closely sessile. Flowers solitary, on long terminal naked peduncles; corolla about two inches long, bright blue, and beautifully fringed; calyx four-angled. Seeds curiously echinate or hispid. (Darlington's *Flora Cestrica*. See also Chapman's *Flora of the Southern United States*; Gray's *Manual of the Botany of the Northern United States*, and Wood's *Class Book of Botany*.)

Dr. W. P. C. Barton, in his *Flora of Ten Miles Around Philadelphia*, published in 1818, reports the fringed gentian as one of the rarest plants of that district. He had never known it to be collected anywhere but in one locality, on the River Schuylkill, and very rarely there. The writer of this had never collected it at all, near Philadelphia, and his first knowledge of it from Dr. Barton's district was from the specimens from which the drawing was made, and which were brought him by Miss Anna Howell, who gathered them on the upper portion of the Wissahickon. In other parts of the United States it is more abundant; but it is one of that class of plants which, though widely scattered, is seldom found in such abundance in any one place as to have any marked effect on the natural scenery. It is recorded generally as being found in open woods, — but those which have come under the author's observation, were growing in rather damp, grassy, open situations. Though not usually found in masses of great extent, the single plants are very beautiful, and attract the attention of any one who may be out gathering autumn flowers or faded leaves, at the end of the floral season. It is remarkable that a flower so suggestively beautiful should not have received more poetical attention,— but though the species are abundant in both the old world and in the new, and many of the species are so showy as to compel observation, references to the gentian are not numerous. Mrs. Browning has to say about

> "Eyes of Gentianella azure,
> Staring, winking at the skies."

And generally such passing thoughts are all it has received. But there are two poems wholly dedicated to the gentian that are worthy of the subject, and it would be scarcely doing justice to the popular literature of the gentian, not to quote them here. One is by S. R. Bartlett.

> "I know not why, but every sweet October
> Down the fair road that opens to the sea,
> Dear in the wayside grasses tinging sober,
> Blooms my blue Gentian faithfully for me.
>
> The fretted spears of Solidago golden
> Lead to this quiet spot they half conceal;
> There, in her silken fringes soft enfolden,
> Year after year, my blue-eyed Gentians steal.
>
> Leaves of the scarlet Sumach glow and flitter,
> Warm rolls the western wave upon the shore;
> The little birds of Autumn flit and twitter,
> The glorious day grows lovely, more and more.
>
> Won to expansion in the radiance tender,
> Upgazing to the Heaven whose hues they win,
> Serene and steadfast in the season's splendor,
> My blossoms blue beam beautiful again.
>
> Faith's emblem true, of all the flowers upspringing,
> I cannot say, I know not why she lives;
> To every sweet October dearly bringing
> A lesson in each azure cup she gives;
>
> I cannot say, I know not why I love her,
> Although the wherefore I so poorly tell;
> Yet all of Heaven's own love to me brims over
> In these fair blossoms of the wayside dell."

Poets often draw largely on their imaginations or on the imperfect memory of things of which they have read; but this picture of Bartlett's is very life-like. Among the sober tinging of October grasses, half hidden by golden rods, the silken fringed flowers of the gentian love to steal for protection. The scarlet leaves of the sumach and other colored-leaved plants fall around them under the influence of the warm western autumn breeze, and the wrens and chipping-sparrows, with other

little birds, usually abound at this season in the places where the gentians grow. But the faithfulness of the poet to his picture of nature is particularly marked in the description given of the expansion of the flower as the October day grows more glorious. If the day be dull the flower remains closed, as in Fig. 2. But if a sudden burst of sun occurs, the flower expands in a very few minutes, and appears as in Fig. 3. They close at night, or if the sky becomes overcast, and open the next day if the sun shines again. If the weather be dull for several days, they do not open at any time more than we see in Fig. 2, in which condition they remain till Fig. 4 is reached, after which they never open again. The pistils and stamens do not mature at the same time, and this is assumed to mean by some physiologists that the flower is arranged for cross-fertilization. The expanded flowers afford good opportunities, and bees could force their way into the closed ones; but many closed flowers show no signs of having been rifled of their pollen, and these flowers are evidently self-fertilized, and produce seeds as freely as those which have been cross-fertilized by the bees.

Besides this beautiful poem by Bartlett, there are Bryant's pretty lines, not quite so suggestive as Bartlett's, but yet a poem to be generally admired.

"Thou blossom bright with autumn dew
And colored with the Heaven's own blue,
That openest when the quiet light
Succeeds the keen and frosty night—

Thou comest not when violets lean
O'er wandering brooks and springs unseen,
Or columbines, in purple drest,
Nod o'er the ground-bird's hidden nest.

Thou waitest late and com'st alone,
When woods are bare and birds are flown,
And frosts and shortening days portend
The aged year is near his end.

Then doth thy sweet and quiet eye
Look through its fringes to the sky,
Blue—blue—as if that sky let fall
A flower from its coerulean wall.

I would that thus, when I shall see
The hour of death draw near to me,
Hope, blossoming within my heart,
May look to Heaven as I depart."

Though so showy and attractive, many of the early botanists did not enjoy its acquaintance. Linnæus seems to have made his first acquaintance with it from Dr. Colden, of Newburg, New York, who made a catalogue of the plants of his state, which was published at Upsal, in Sweden, in 1743. About the same time, John Bartram had sent seeds to England, as we learn from a letter of Peter Collinson to John Bartram. Under date of October 20, 1740, he says:—"I have several very curious flowers out of the mixed Virginia seeds. * * A very pretty dwarf gentian, with a large blue flower, the extremity of the flower-leaves all notched or jagged. The whole plant is not above three or four inches high. I am afraid it is an annual." He is not satisfied about this question of duration fifteen years later, for writing on January 11th, 1753, he inquires of John Bartram, "is that charming autumn Blue Gentian an annual, or biennial, or perennial?" Exactly one hundred years later, we find Dr. Darlington, in the work from which we have quoted, asking the same question; and even now the only point certain is that it dies after flowering.

Some of the earlier botanists divided the genus according to the number of their floral parts. There are some which have four lobes to the calyx, four to the corolla, and four stamens; and others which have five. Those with five were to be the true *Gentiana*;—the others were called *Gentianella*. Our best modern botanists do not recognize this distinction, because the natural resemblances are so uniform, that the division seems a shock to the natural system of botany. Under the sexual system of Linnæus our species would have been in the class *Tetrandria*, from its four stamens, and *Gentiana* proper in another. This, as a system, is so evidently unnatural, that it is no wonder such arrangements discouraged the student. But for generic classification, the characters, from the number of stamens, might have more value. Fig. 5 has just enough of the calyx and corolla cut away to show the arrangement of the four stamens.

*Gentiana crinita*, or "fringed gentian," was so named by Joseph Aloysius Frœlich, in a work published in Germany, in 1796, called "de Gentiana libellus"—a small treatise on gentians. It grows westward to Dakota, and through the Allegheny mountains to Georgia.

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EXPLANATION OF THE PLATE — 1. Upper portion of a complete plant. 2. Closed flower. 3. Flower open under sunlight. 4. Flower finally closed. 5. Flower with portion of calyx and corolla cut away to show pistil and stamens.

# WILD FLOWERS AND NATURE.

## TO THE YUCCA GLORIOSA OR SPANISH BAYONET.

A thick, sharp nest of dagger-pointed leaves,
  Black tipped, from the gray mesa rises green,
And from its heart there springs amidst the sheen—
  As a white pinioned bird the sunshine cleaves;
As Hope, who life's sharp bitterness relieves—
  A blossom spire that greets the sky serene,
  In calm dominion o'er the desert scene.

Thick hung with creamy bells that chime strange breves,
  O Yucca gloriosa! Spirit soft,
And full of strange, mysterious, subtle scent,
  Slow swing thy fair white blossom bells aloft
In the calm mesa's wide environment,
  Ringing the dirge of that old race which oft
Heard music in thy bells and smiled content.

—FLORENCE E. PRATT.

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WISCONSIN GOLDENRODS.—Goldenrods have just had their season, and the following from Mr. John M. Dunlop of Milwaukee is timely: —"There are about 26 species of goldenrod belonging to our State, and most of them are very beautiful. I will take the liberty of introducing you to what I think most worthy of notice, and to assist those who may desire to make a collection. The first to bloom is *Solidago uliginosa;* but there are so many good ones that I need not describe it.

From about the 10th of August to the middle of October the prairies are a flower garden, and the species to be found on the prairies are different from those in the woodland. There are about eight species which grow on the open prairie. *Solidago rigida*, *S. Riddelli*, *S. Ohioensis* grow together, and their style of blooming, a compound umbel, is the same. The first may be known by its stiff, upright stem, ovate lanceolate leaves, embracing the stem by heart shaped base. The next, *S. Riddelli*, has long slender lance leaves recurved, and embracing the stem by a long winged petiole. *S. Ohioensis* has lance oblong leaves, on short petioles, and is the most beautiful of the three. On dryer parts of the prairie you will find *S. nemoralis*, *S. bicolor*, *S. neglecta*. The first, *S. nemoralis*, is very showy. The heads are turned to one side and are of a bright yellow. *S. bicolor* will be known by its elliptical lanceolate leaves, and its two-colored flowers, nearly approaching white and yellow. *S. neglecta*, stem rather stout, leaves thickish, oblong, lanceolate, the spike or panicle close, and heavy, apt to double in the middle, from its weight. *S. juncea* and *S. Canadensis* are also found around the prairies. The last may be classed with those growing in the woods, and grows five feet in height, has large panicles of flowers, with lanceolate serrated leaves. *S. patula*, *S. ulmifolia*, *S. serotina* are all strong growers with fine spreading heads. *S. lanceolata* and *tenuifolia* are not of any great beauty, owing to the smallness of the flowers. *S. speciosa*, is one of the most beautiful of this large family; the color a light yellow, grows six feet in height with fine foliage, and large panicle of light yellow flowers, and is the last to be found in bloom. *S. Missouriensis* grows about three feet in height, and blooms in a dense crowded raceme, with broad lanceolate leaves, and would make a good border plant. We have so many species that I could not mention all, so will quit with the hope this may induce many people to cultivate these beautiful native plants."

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WILD FUCHSIA.—This is the name given in Texas, according to a correspondent of *Garden and Forest.* to a malvaceous plant, known as *Malvaviscus Drummondii.* The flower is bright scarlet, hangs like a fuchsia, and has exserted stamens just as the fuchsia has. In cooler and more northern climates the common *Malva rotundifolia* produces fruit which is eaten by children and sought for under the name of "cheeses," the fruit very much resembling in form a small block of cheese when it first comes from the press. The wild fuchsia of Texas is closely allied to this plant, but differs in producing a more berry-like fruit, which is bright scarlet and quite showy. It is sought after by the children for eating, just as is the fruit of its more northern relative. There is scarcely any taste whatever to the fruit.

Sheathing Petioles and Stipules. — "*Heracleum lanatum*," says Mrs. Kellerman, "furnishes a good example of the development or origin of leaves, and is also, in itself, an argument against the popular idea, that the stipules are an outgrowth from the base of the leaf. It would surely be placing the cart before the horse, to claim that the leaves in this case were produced prior to the development of the sheath; they certainly spring from the extremity or apex of the sheath, and must be an outgrowth, — an evolution from the latter. Sachs says, that the sheath in the *Umbelliferæ* answers the same purpose as the stipules in other plants. And so it is. We see in the

HERACLEUM LANATUM

rose, for example, nice gradations from the first crude bract to the stipules, and from the stipules up to the perfect leaves.

But the stipules, I take it, are the ancestors of the leaves, instead of being appendages, mere hangers-on, as it were, which have sprung from the base of the leaf.

In the accompanying illustration this same process of development is represented. Here we have the leaves springing from the broad expanded apex of the sheath, bearing as yet, no petioles. Indeed, one cannot say just where the sheath ends and the leaf begins, so slight is the differentiation between the lamina and the sheath, at the place of union. Here, also, is figured a higher stage, in which the leaves spring from the contracted apex of the sheath, and are furnished with long petioles. Later on, the sheath takes on the office of protector, and the normal leaf springs directly from the axil of the now reduced sheath.

How interesting are these leaves growing from the top of the sheath. They have a sort of ancestral air about them, as if they belonged to a type which existed long ago when so much division, and serration, and the like, was not necessary. But leaves, like people, have some little understanding of ventilation, and the leaves, at least, try to live up to their highest conceptions (?) of the best modes of ventilation; hence they become lobed, dividing, etc., to admit of a more thorough circulation of the air.

In so many plants with which we meet, by the roadside, or in the garden, if we but understood their language, there are clues given of much of their history. Even the variation of stipules is full of interesting things—puzzles and problems meet us here as elsewhere; but each little step in advance, helps to make clear the succeeding trial at solution."

Sachs does not state what the "purpose of the stipule" is. The fact is, the sepals and petals of magnolias, roses, and many other plants, are stipules, or the sheathing bases of leaves,—for there is no dividing line between the two,—and at the point where growth ceases, and buds are formed, the bud-scales are again but modified stipules. We may say that the purpose of stipules is the protection of tender parts. The tulip tree furnishes a pretty illustration of the protective purpose of the stipule.

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Expulsion of Seeds from their Capsules. —Mr. W. F. Bassett, Hammonton, N. J., notes that "*Centrosema* pods, when fully ripe and exposed to a hot sunshine, open suddenly and expel their seeds forcibly, and the pods then curl up. The pods of the Chinese wistaria open by the action of frost, and the seeds are projected some distance and with considerable force. The writer has a vine near the house, and when very severe cold comes often hears the seeds strike against the glass, and finds them scattered to a considerable distance."

It has been recorded that the wistaria throws its seeds long distances, even when in rooms secure from frost.

SPECKLED RHODODENDRONS.—That branch of vegetable biology which has to do with the evolution of species, would be vastly benefitted if the leaders in that branch were more familiar with the plant growth which is within the experience of the lovers of gardens. Horticulture indeed ought to be made a branch of vegetable biology. Whether or not an acquired character is hereditary, could easily be answered by the experience which every flower lover has. Varieties which seem to spring suddenly into existence, and which is about all that is really known of an "acquired" nature, are well known to be hereditary, and what are called in flower gardens "races," well exemplify this point. There is really nothing known of any truly acquired character, in connection with heredity. We may, for instance, look at the vast army of bicyclers who bend themselves on their machines like the letter "Q". These men, it will scarcely be contended, are likely to be the progenitors of a curved back race of human beings, because of the characters they themselves have acquired of riding in such an uncouth position; but any new character in any plant, which seems to spring into existence from some unknown law, is well known to be hereditary. With this we give an illustration from the *London Gardener's Chronicle*, of a new race of rhododendrons, to be called the speckled race, and which will be found as truly hereditary in character, as any of the species of rhododendron are usually supposed to be. This particular variety is known as the Princess William of Wurtemberg. Its value for itself as a pretty variety, is just as good as from illustrating the point made in this chapter, that any character once appearing in a plant by its own natural law, may be hereditary. Raising rhododendrons from seed is not, however, practiced in America.

HYBRID PITCHER PLANTS.—A correspondent who has been spending some weeks in the Carolinas and Georgia, is studying the pitcher plants, and feels satisfied that in the state of nature they sometimes hybridize. He has found plants which are so intermediate between *Sarracenia flava* and *S. purpurea*, that he is sure they are hybrids. These plants are capable of hybridizing freely, as is shown by the number of varieties which have been raised by this process in the Old World; at the same time it does not follow that because a plant appears to be intermediate between two others, it is necessarily a hybrid. The range of variation which plants possess naturally, in response to some innate law which has not yet been accurately understood, is much greater than even many of our best botanists understand. It is very important to bear this fact in mind, because it is the innate power of plants to vary, aside from any external conditions, that is regarded as one of the great forces acting in the evolution of species. Granting heredity to hybrids, there should be more wild species than there are.

SPECKLED RHODODENDRON.

DODDER.—These plants, belonging botanically to the genus *Cuscuta*, are among the most troublesome of parasitic weeds to the gardener and farmer in the old world. Some of the species have become so destructive in French agriculture and horticulture that the Prefect of one of the large provinces, Charente-Inferieure, has issued instructions, which are circulated freely among cultivators, making it obligatory on every one to destroy the plants wherever seen. The mandate is accompanied by descriptions by which the cultivators may know the pests as soon as they have begun their growth. It is remarkable that the plant is an annual, and commences its growth by seed in the ground as ordinary plants do; but after they find something to attach themselves to, they draw their sustenance from the host plant, and then the connection between the plant and the soil dries up, and the plant is completely severed from its terrestrial connections. The plant belongs to the natural order of *Convolvulaceæ*, that is to say, the section to which the common morning glory belongs, and some of these, as, for instance, in the common Moon flower, have warty excrescences along their stems, which some have supposed to be young, abortive, ærial rootlets. A recent communication to a scientific society, considers these excrescences to be incipient haustoria, which is the name given to the little suckers which are thrown out from the dodder, and which penetrate the host plant and furnish food to the parasite. In other words it might be stated that these morning glories are in an incipient state of evolution towards the parasitic condition.

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A PARAGRAPH IN *The Independent*, a few years ago, quoted the opinion of an observer that the beautiful nest of the pewee (*Contopus virens*) faced so beautifully on completion by attractive lichens, could scarcely be solely for protective reasons, but indicated the possession of an esthetic faculty. Prof. Asa Gray entered the lists against this view. He was sure the birds had no thought of anything but to make their nest as much as possible like a lichen-covered branch, so as to deceive the raptorial enemy. It seems to be admitted that the greater beauty of the male bird is to aid him in his amatory transactions. This would certainly be granting some force to the esthetic argument, though Dr. Gray's point might hold good in nest making, where protection from enemies would naturally be the uppermost thought. Dr. C. C. Abbott, the eminent ornithologist, has been making some experiments to test this point in connection with nest building. He placed woolen yarn where a pair of orioles could find it convenient. It was of yellow, purple, gray, green and red. He mixed them so that the bright colors should be in the most tempting situations. But they would not touch a single strand of yellow or red. All of the gray was taken, with here and there a few strands of purple. It was impossible not to conclude that the prevailing colors of the bark of the trees with their mosses and lichens instigated the selections of the woolen yarn. "We must deceive the enemy as far as possible," was evidently the avi-architects' leading thought in the construction of their building.

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VIPER'S BUGLOSS.—A lady of Pittsfield, N. H., sends, for naming, a plant raised from seeds sent from Switzerland. It is botanically known as *Echium vulgare*. In England it is universally known by the common name of "Viper's Bugloss." In Virginia, its common name is "Blue Devil,"—the agriculturists of that region so naming it on account of its being one of the most pernicious of weeds. It is a remarkable fact that so many plants, which are not annoying to agriculturists in the old world, seem to thrive with greater vigor and persistence when introduced into our country. The lady who sent the plant, refers to the remarkable difference between the root leaves and the leaves of the flower stem. This is a point much more worthy of the attention of even critical botanists than it generally receives. Herbarium specimens too frequently contain nothing but flower shoots or stems. The root leaves are just as important, for in a large number of cases there is a striking difference between the two classes of foliage. It has even been stated that quite as much can be learned of plants by studying their winter leaves as by studying the parts of inflorescence.

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RANGE OF CORNUS CANADENSIS.—Mr. C. F. Saunders noted several little plantations of the dwarf dogwood, *Cornus Canadensis*, on Mount Pocono, last summer, and inquires regarding its most southern range.

# GENERAL GARDENING.

## WITHOUT THE BIRDS.

Think of your woods and orchards without birds!
Of empty nests that cling to boughs and beams
As in an idiot's brain remembered words
Hang empty 'mid the cobwebs of his dreams!
Will beat of flocks or bellowing of herds
Make up for the lost music, when your teams
Drag home the stingy harvest, and no more
The feathered gleaners follow to your door?

—LONGFELLOW.

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SWAMP PLANTS ON DRY LAND.—It should be well known by this time that swamp plants as a rule will do much better in comparatively dry land than in the swamps where we naturally find them. Even, the rice plant, which usually grows in water, will grow well and produce a fair crop of seeds in common garden ground. The reason for this has been fully explained in scientific serials. It reads oddly in a report just issued by the United States Department of Agriculture, suggesting that the common swamp rose-mallow, *Hibiscus Moscheutos*, would possibly grow in dry land, as an experiment was made to test this fact, on the Delaware River, thirty-five years ago. The plant is growing in every well ordered herbaceous ground, and is one of our most popular border plants. It is a weakness of the United States Department of Agriculture that it is so often behind the times in its publications. One of the best tasks for that department would be to make an index of what has been placed on record in the many serial publications of our country during the last half century. Dr. Franklin B. Hough did something of this work in forestry when he was in this department. It is much to be regretted that such useful work has not been given a broader scope.

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THE MOLE—THE GARDENER'S ENEMY.—One of the most annoying of living things to the cultivator is the mole. It roots and turns up the soil in every direction; but the scientific man tries to comfort the flower lover by assuring him that the creatures are only after grubs and worms, which would destroy his plants at any rate. It is, however, coming to be acknowledged as a fact that nearly all creatures will eat either animal or vegetable food as it suits them. Among birds, it is believed, there are not a dozen in America that live exclusively on animal food, and it is probable that even this dozen would readily change their habits if the proper amount of animal food was not forthcoming. In relation to the mole it is stated, that a lady in Oregon, a Miss Talbot, arose in her place in meeting, and protested against the assertion of the Professor, that the mole lived on animal food alone; she was, however, talked down; but determined that she would not remain in the class of ignoramuses, she therefore caught one, caged it and gave it nothing whatever to eat but vegetable food, and when the convention met next year she produced her pet mole before the Professor, fat and hearty for all its exclusively vegetable diet. Miss Talbot states that she found her mole especially fond of peas.

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ROBINIA VISCOSA. — This beautiful species of locust was discovered by Michaux, in his celebrated journey through the Alleghenies; but it is understood that no botanist has ever been able to find it truly wild, since that time. It is remarkable that it should disappear so entirely from a wild state, considering that it will grow from suckers as well as from seeds. Under cultivation it is found to be much more troubled by the locust borer than the ordinary yellow locust, which, it is well known, suffers considerably from this insect's depredations. Very few persons, therefore, can show a nice specimen of this beautiful tree. In the West Laurel Hill Cemetery, near Philadelphia, there is, however, a beautiful specimen, one of the finest that we have ever seen, and which seems to be so far entirely free from the depredation of the insect. It is chiefly to the locust borer that the various ornamental forms of locust, so abundantly employed in European gardening, are seldom seen in American collections.

Evaporation and Transpiration. — I stated in your valuable Monthly for September, 1891, that my observation and experience led me to the conclusion, that the knots left in the body of the tree, when large limbs were cut off in March or April, were more liable to rot and thus weaken and rot the tree than when such limbs were cut off in September, and I still think that this is the fact. It may be that the abundance of sap in the little tubes which supplied the limbs cut off in early spring, stagnates and ferments and causes rot, whereas if these limbs were removed when these tubes were comparatively free from sap, say in the fall or early winter, their greater freedom from sap and the cooler weather might cause the knots to season instead of rotting. My attention was in early life called to this point by the fact that a tree deprived of large limbs by the wind in September did not have its knots rot in the tree, while limbs cut off in March had their knots rot and weaken the tree. In after years I thought my observations proved this a general truth.

In commenting upon what I wrote, you remark that summer pruning is at the cost of foliage and that a tree usually needs all the leaves it can possibly get. I presume that trees generally have about the proper number of leaves; but there are exceptions. Leaves exhale or transpire a great amount of water and if too many are left upon a tree when it is transplanted they may throw off water enough to dry and thus kill the tree. For this reason when transplanting trees at any time of year, we trim the tree if necessary, in order that it may not have leaves enough to exhaust the moisture of the tree faster than it can be supplied by the roots. When transplanting in summer we not only trim but pick off leaves so as to leave very few to exhaust the moisture in the trees before the roots get attached to the soil so as to supply the needed water. I have revived newly set trees which were apparently dead and the leaves of which were withered and dried, by severely trimming them and wetting the ground and their bodies and keeping the trees covered with wet rags or straw for a week or more. Instead of trees always wanting all the leaves that they can possibly get the cottonwoods of the west, will, when the ground is moist in the spring, start out with an abundance of leaves; but as the ground dries during the summer they will drop many, perhaps half, of their leaves, their roots being unable to find water enough to supply the transpiration from so many leaves. Judge Hutchinson, of Kansas, one summer noticed that the large cottonwood in his front yard had apparently forgotten to fill his yard as usual with leaves and that it kept up its vigorous growth notwithstanding the drought. Here was a case that even a judge could not understand. Soon the pump refused to bring water from the cistern. Examination proved that the cottonwood had sent its roots into the cistern and drank up the family supply of water. As long as it could steal water enough to supply all of its leaves, it kept them all. The amount of water transpired by trees and other plants is to me an exceedingly interesting subject. If my figures are correct and my memory has not failed me, that grand man, Asa Gray, estimated that the Washington elm at Cambridge would, during the months of the year in which it is in leaf, transpire water enough to cover the ground which it would shade under a vertical sun to the depth of fourteen feet. I presume the fact will be found to be that plants are during droughts put upon a short allowance of water as is sometimes the case with shipwrecked sailors and other unfortunates. If such be the fact, the difference between the amount of water which a tree does actually transpire, and what it would if abundantly supplied all the time is immense. J. D. Lyman, Exeter, N. H.

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Cool Orchids.—Some Mexican orchids can be grown well in the open air in summer, and a bay-window or attached greenhouse in winter. One of our subscribers, Mr. H. Cramer, of Germantown, succeeds admirably with them, as a note and illustration in a former volume amply testify. The present season a wonderful specimen was hanging at his front door, dispensing fragrance to wide distances. It was in a wire basket about a foot in diameter, filled with old bark and peat, and nine spikes of flowers were hanging from bottom and sides of the basket; on the spikes fully expanded nine blossoms were open, so that nearly one hundred blossoms will be the total number. There were twenty-five healthy leaves on it. The variety appeared to be *S. occellata*. Can anyone tell of a finer one?

THE TRUMPET OF JERICHO.—Our French contemporary, *Lyon Horticole*, is indignant at the confusion in common names of plants and brings up the case of the well-known *Brugmansia arborea*, which is being styled *trumpette de Jericho*,—when the common Calla Lily, *Richardia Æthiopica*, it insists, is the true *trumpette de Jericho*. The walls of Jericho could hardly have withstood the discussions which this subject of common names for plants has originated, even had they been built of Bessemer steel.

Whatever may be the final decision, it is very popular as a lawn plant around Philadelphia, and probably in other parts of the Union as well because it is so easily taken care of in winter time, as for its large showy flowers. The stems being somewhat fleshy, a plant may be grown in the open ground all the summer season, where it will flower profusely, and the plant can then be taken up with most of the earth shaken out from the roots,—the roots cramped into a small box, with a very little earth about them, and transplanted the next season with very little care being given to it. It starts into growth at once when the warm summer season comes, and blossoms profusely the whole year. Its botanical name is *Brugmansia arborea*. Our English contemporary, *Gardening Illustrated*, figures a double variety, which is regarded as more beautiful than the original single one, and is said to flower much more profusely. It is only double by having an inner corolla,—it appears as though one flower was put into another, just as children do in the case of any tubular flower. This double form is called *Brugmansia Knightii*.

TRUMPET OF JERICHO.

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PAULOWNIA IMPERIALIS.—Mr. Geo. Balderston, of Colora, Md., referring to a paragraph in MEEHANS' MONTHLY, relating to the introduction of *Paulownia Imperialis* about Philadelphia, states that the first tree in that section was introduced by Caleb Canby, in or about 1850. It measures four feet across the stump, or say twelve feet in circumference near the ground. The seeds are very little, and young trees appear at long distances from seeds, carried by the wind. The young seedlings are usually killed to the ground the first year; but sprout up again and are subsequently uninjured. The tree grows easily from a piece of root. Seedlings from the original Canby tree are now about six feet in circumference.

THE EVERGREEN TRUMPET VINE.—*Bignonia capreolata* is one of the best evergreen self-attaching vines in Philadelphia, and possibly much further north. On the grounds of one of our subscribers a plant became detached from the wall, and was cut away. In a short summer it again covered the whole wall surface 25 feet high.

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PRUNING HEDGES.—The golden rule for successful hedge treatment is always to have the lower or basal portion the widest part of the hedge.

JAPAN MEDLAR. — The true medlar is a species of *Mespilus*, *M. Germanica*. They do not seem to thrive in America, preferring a cool climate to our warm summers; the leaves soon become diseased, and the fruit that follows is insipid, as is generally the case when the leaves of a tree become injured before the fruit is ripe. The Japan medlar belongs to another genus, but one very closely related to *Mespilus*, namely, *Eriobotrya*. Unfortunately this plant flowers so very early in the season, that outside of the extreme Southern states, they are all destroyed by early spring frosts. In New Orleans they are known as the Japan plum, and are sold everywhere, from street corners to the elegant fruit stores. There is a great difference in the quality of the fruit as sold in that city; some are scarcely worth eating, while others are again delicious, and equal in flavor to many a fruit with a high reputation. Probably there is some secret in manipulating the fruit, or there may be different varieties. Mr. Berckmans says that "the plants do not mature fruit north of Charleston." Many persons, however, like to grow them as tub plants, but we do not know that they fruit in this way, although there seems no reason why they should not. Mr. Berckmans also says that, "for transplanting, seedlings should be grown in pots." He says that "trees grown in the open ground, and transplanted, very often fail to grow."

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THE TUPELO TREE.—Few trees are made more beautiful by their colored foliage in the fall of the year, than the Tupelo trees, *Nyssa sylvatica*. The rich scarlet-crimson of the foliage is not equalled by any other tree. There is a great variety in the habits of the trees, depending in a great measure on sexual characteristics. A large number of trees have only male flowers, and these trees never reach the large proportions and noble appearance that the berry bearing trees do. The blue berries give the tree an additional attraction, as whenever an individual specimen proves fruitful, the numerous blue berries make a pretty contrast with the brilliant color of the autumn foliage. Unfortunately there is no way to distinguish the character of the tree until it comes into bearing, so that planters have to run their risk. It was at one time supposed that the tree was difficult to transplant. This was chiefly from experience with trees taken from the woods. Seedling trees raised in nurseries, and transplanted as other nursery trees are before they are sold, move as well as the average of trees.

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CHRYSANTHEMUM CULTURE.—Mr. Geo. W. Clemson, of Taunton, Mass., is regarded as one of the best chrysanthemum growers in that state. He has learned what a large number of other growers have not, that it is an error to pinch back the shoots in order to make the plants bushy at a late period of their growth, as this late pinching results in comparatively small flowers. He gives the plants their potting on the 20th of June, and never pinches back the shoots after the 10th of July. Water is never given, unless the individual plant requires it, whereas so many cultivators dash water over every pot whether the plant needs it or not. A good syringing, however, is given all the plants every evening after hot, sunny days. Liquid manure is given after the flower buds appear; but not oftener than two or three times a week. Kerosene mulching or tobacco water is given with the syringe, about once in five days, to keep down the black fly. Mr. W. W. Craig is the gardener in charge of the plants.

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HYDRANGEA PANICULATA.—It does not seem to be recognized that there are two forms of this hydrangea, in cultivation, that are often confused, one is the *Hydrangea paniculata*, properly so-called, and the other *Hydrangea paniculata grandiflora*. The difference being that the latter has many more male flowers, as the large white ones are called, than the former. Where gracefulness and a feathery appearance is desirable, the original species is preferable to the *grandiflora*, although for intrusive showiness the latter is far superior.

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RHODODENDRON DISEASE. — It may be as well to remind the reader that a fungus disease occasionally kills branches of rhododendrons, the owner being able to recognize only that "something is the matter with them." The appearance in spring is often that of being injured by frost. But frost does not kill some branches, and let others alone. Pruning out the diseased branches and washing with some copper solution, is the remedy.

ARAUCARIA IMBRICATA.—Mr. Robt. Douglas, Waukegan, Ills., notes:—"In the July MONTHLY, it is stated that some half dozen *Araucaria imbricata*, about ten feet high, are growing on the estate of Mr. Vanderbilt, near Asheville, N. C. This statement might lead planters astray, because if the plants are left out in winter they will surely die, and parties reading the article might infer that they are hardy in that climate. This tree is quite at home in south California, but I do not recollect seeing it doing well as far north as San Francisco, although I recollect seeing *A. excelsa* doing passably in sheltered spots around San Francisco." The *Araucaria imbricata*, or Chili pine, endures a temperature anywhere above zero in the south of England. Its hardiness is more a question of atmospheric moisture than of the degree of cold. Young plants in English nurseries are now chiefly raised from home collected seeds.

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SUCCESSION IN FLOWERING TREES.—A lady was recently praising the Chinese sumach, *Rhus semi-alata*—or *Rhus Osbeckii*, as it has been called in some collections—because of its immense bunches of feathery white flowers, appearing in August, when few other trees were in bloom, regretting that there was nothing else to follow; but it may be remarked that there is a small tree, not of the same family, but having similar large white sprayey inflorescence which follows immediately after the falling off of the sumach flower, namely *Aralia spinosa*, often known as the "Hercules Club" or "Angelica tree." The beautiful effects from the Angelica tree, indeed, rather exceed those of the sumach.

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HARDINESS OF THE CRAPE MYRTLE. — Philadelphia is about as far north as the crape myrtle proves hardy. Though killed to the ground it will push up and flower like an herbaceous plant. Possibly it would give an attraction to gardens, in this herbaceous way, much further north than Philadelphia. Several correspondents write that it is not always killed down even so far north as Philadelphia. One at Chestnut Hill, a part of Philadelphia, instances a specimen, 5 to 6 feet high, which must have passed several winters unharmed.

## FRUITS AND VEGETABLES.

BACTERIAL DISEASES.—In a recent number of MEEHANS' MONTHLY it was noted that the hollyhock fungus, which a few years ago was so virulent as to nearly destroy the cultivation of the hollyhock in America, had about disappeared, and that the hollyhock was again popular in many gardens, in its old time glory. The paragraph was scarcely in print before disease again appeared with its old time virulence. The season, in fact, has been particularly favorable to the existence and spread of the lower forms of fungus parasites, and also for these still lower forms which now go under the general name of bacterial diseases. Under this latter expression, we are now to class a twig blight in the apple and quince. Fire blight in the pear and some of its allies, and we believe in similar cases connected with other fruit trees, the peculiar organism has been named *Bacillus amylovorus*, the specific name, we suppose, meaning a "feeder on starch." This little parasite effects an entrance into a portion of the tissue and then sends its influence in the form of a ferment throughout the whole structure above the point attacked. In somewhat recent times these were classed in rules on gardening as *Zymotic* diseases, and we do not know but what this term is yet just as good as the more modern "bacterial troubles." As before noted, this season seems to have been particularly favorable to these troubles. There seems to be no effectual method of preventing them. It is fortunate, however, that very nice combination of conditions are requisite before they can develop much strength. They do not as a rule injure trees permanently, except in so far as the parts destroyed are concerned, and it is only in exceptional seasons, like the present, they are destructive. It is fortunate that nature seems to protect us here where we are unable to take care of ourselves.

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A LARGE CROP OF POTATOES. — Professor Maynard, of the Massachusetts Agricultural College, had twelve acres and a quarter in potatoes, which last year produced three thousand five hundred (3,500) bushels, which yielded, at 50 cents a bushel, $1,750, the cost of producing same being $714; interest on the value of the land is not counted.

EARLY RIPENING OF PEARS. — Artemus Ward, the American humorist, is credited with the joke that there was something in the soil or climate which prevented water-melons from ever ripening in the vicinity of theological colleges, and Mr. Erwin Smith hashed the joke as an original one before a recent meeting of the American Association for the Advancement of Science ; but many certainly know of cases where there is something in the soil or climate which prevents pears and other fruits from ripening in the vicinity of any classes of boys or young men. Pears especially are the first to drop in this mysterious way from the trees. Fortunately there are a few pears, which when gathered from the trees when about full grown, although they may be a month from their natural time of maturity, will still ripen well if gathered before their natural time. One of these is the Bartlett ; the natural time is the beginning or middle of September ; but if taken from the trees at the beginning or the middle of August, or the month before the natural ripening, and placed in a dark apartment or cellar, they will ripen in a few days, and be very nearly of as good a quality as if left on the tree for the full, natural term. There are probably other varieties of pears that would do this, and a list of them would be very useful to fruit growers.

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PRESERVING GRAPES. — In our country, where cold storage has become such a wonderful success, no difficulty is found in preserving grapes, or other fruits, long after the natural season has been passed. Our process, however, does not usually preserve the beauty of the grape ; they have to be packed in boxes, and when they come out lose their good form, however much they may have preserved their edible character. In the Old World, however, where the beauty of the fruit is as much appreciated as its quality, they have to look to other means of preservation. One of the most popular methods of preserving the grape so as to secure this beauty of form as well as lengthening the period over which grapes may be obtained, is to have long racks in the fruit houses made to sustain bottles of water, the grapes are cut with portions of branches attached, and these branches placed in the bottles. The water prevents, of course, the evaporation of the juices of the fruit, and if care is taken to guard against mold, they can be had many months after the bunches have been taken from the vine. The great beauty of a bunch of grapes, when it appears on an English dinner table, is in the waxy bloom which covers the grape, and by this method of preserving bunches, this bloom can be preserved intact.

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A DESTRUCTIVE GRAPE VINE BEETLE.—It has been found by experience, that when an insect finds itself in a strange country, cut off from the plants it has been in the habit of feeding upon, it soon learns to select another plant on which to bestow its attention. In this way new enemies to the fruit grower are continually appearing. It is said that in Ohio a beetle, long ago named *Fidia viticida*, has appeared in considerable numbers in some of the vineyards. By its specific name, it is evidently known as "a feeder on grape vines and leaves," or it would not have been so designated ; but the trouble now comes from the "grub," as it is now becoming popular to style all these worms. These white grubs attack the roots, and are said to be very injurious.

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DOCKS AS VEGETABLES.—The common dock is considered a nuisance by cultivators, and yet some of them serve a useful purpose. The common one known as "Sorrel" is used in the Old World to make special sauces for meats, and one of the species is used in the form of spinach ; this is known as the spinach dock; botanically it is *Rumex patientia*. They are not, however, as much appreciated in the New World as in the Old, and the probability is that other kinds of vegetables are more easily produced in bulk, and suit the taste just as well.

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THE WINCHELL GRAPE.—The report of the Massachusetts Horticultural Society states that this should be the proper name of the "Green Mountain Grape," and states further that it is of thoroughly good quality, ripening a little while before Moore's Early.

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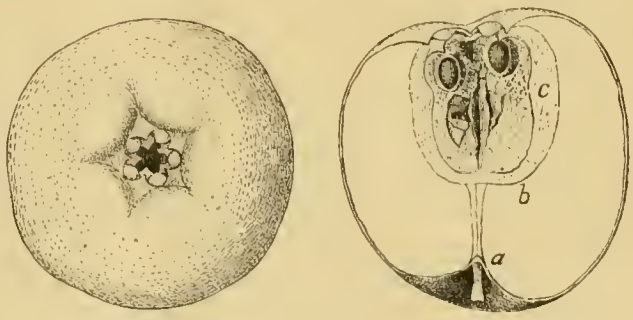
THE LARGEST PEACH.—What is the largest peach on record? Mr. W. A. G. Adams, of Dallas, Texas, has raised Chinese clings ten and a quarter inches in circumference.

AN APPLE FRUIT WITHOUT FLOWERS. — Nothing is more instructive than departures from normal types in fruits or flowers. In apple trees there are occasionally some with no petals yet bearing fruit,—and others bearing apples which have no cores in them. No explanation has been given until recently when some from Virginia were sent to the Philadelphia Academy of Natural Sciences, by Mr. Joseph Anschutz. It was there seen, under the light furnished by morphology that every part of a fruit might have been leaves or branches, the explanation of these apetalous and coreless apples was very simple. The apple is simply made up of more than the usual number of leaf series. In cutting an apple lengthwise the lines show that it is made up of two separate fleshy sets. If a branch had been formed instead of an apple, these would have been their leaves instead of fleshy substances. *A*, in the cut, shows where the first series of leaves on the stem would have been, *b* and *c* the other two. The first two would have terminated in the calyx lobes, and petals, and other series would have formed the carpels which enclosed the seeds. But in this abnormal case the stem undertook a new advance in growth before the transformation was complete, and tried to make a new "apple" on the top of the incompleted one. What would have been calyx, petals, or carpels, did not perfect, but some of the stamens and stigmas seem to have so nearly reached perfection, as in a few instances to produce a few small seeds. A view of the calyx basin in the other cut shows these duplications of parts very well. The usual calyx lobes are merely five swellings, and the usual petals represented by five small pointed scales between the lobes. What might have been five sepals, and five sepals then follow alternately, representing the secondary effort of growth noted. One might say in brief that a coreless and apetalous apple results from nature trying to form two apples in one.

FAILURE OF FRUIT CROPS. — It has been known that in many early-blooming trees the stamens can be excited to growth by a much lower temperature than will excite the pistil to growth. A few warm winter days will so often advance the stamens in plum flowers, that the pollen disappears before the pistil is receptive. Plum crops often partially fail for lack of the necessary fertilization. Practical men have long since discovered that a south aspect is not as good for fruit trees as any of the others, without knowing the real reason.

GRAFTING THE TOMATO ON THE POTATO. — When the potato is grafted on the tomato, which can be done by reason of the close relationship between the two plants, the potato roots continue to produce potatoes, while the tomato grafted on the potato stalk continues to produce tomatoes. This is considered in some of the agricultural papers as remarkable, that one plant should produce two different kinds of products ; but it is no more remarkable than all other experiences in grafting. A pear may be grafted on the quince, but the roots are still quince roots, although pears come from the grafted portion. There have been cases known where the graft will influence the stock, but to such a slight degree as not to materially alter its character.




CORELESS APPLES.

HEAVY APPLES. — As most apple-lovers know, there is a vast difference in the weight of apples in proportion to their size. A specimen on the table before the writer, of the "Speckled" or Westbrook—an excellent golden yellow roundish apple brought prominently into public notice many years ago, by Mr. Lorin Blodgett, the eminent statistician of Philadelphia, weighs 7 ounces, though but 10 inches in circumference. Possibly few apples could present a better record. The "Cannon Ball apple" would be a good name for such a fruit.

# BIOGRAPHY AND LITERATURE.

## THE BIRDS AND BEES.

I think the bees, the blessed bees,
Are better, wiser far than we,
The very wild birds in the trees
Are wiser, far, it seems to me;
For love and light, and sun and air
Are theirs, and not a bit of care.

What bird makes claim to all God's trees?
What bee makes claim to all God's flowers?
Behold their perfect harmonies,
Their common board, the common hours!
Say, why should man be less than these,
The happy birds, the hoarding bees?

—JOAQUIN MILLER.

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FOREST LEAVES.—Under this title there is published in Philadelphia, monthly, by the Pennsylvania Forestry Association, an unpretending but very useful magazine in the interest of forest preservation and forest culture. With each issue there are illustrations of some famous trees, or of something remarkable about our forest trees, of special interest to every tree lover, and these illustrations are in the handsomest style. In the issue before us is a beautiful engraving of one of the few trees that have been allowed to remain in old Philadelphia, in the heart of the city proper. This is an elm known as the Dundas Elm, standing on the property of a former well-known horticulturist and lover of plants, Jas. Dundas, corner of Broad and Walnut Streets, well preserved. His daughter in-law, Mrs. Lippincott, recently deceased, took a just pride in everything tending to the preservation of this beautiful tree. There are few handsomer trees of any kind, than this elm, in any part of the older portion of the city.

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THE SHAMROCK. — The shamrock is the national emblem of Ireland. Tradition goes that St. Patrick was unable to convert a powerful Irish King, and on the conversion of this King depended the success of his mission. The King was worried about the doctrine of the trinity. He could not understand how there could be three in one, and one in three at the same time; but Patrick is reported to have taken up a trifoliate leaf of some kind as an illustration, and in this way the King is said to have been satisfied. The question has been what kind of a trifoliate leaf did St. Patrick use. Linnæus, the great botanist of the last century, seemed to have an idea that it was one of the clovers, *Trifolium pratense*; but the point has been made that this clover is not truly indigenous to Ireland, but came there when commerce between Ireland and the civilized portions of Europe commenced. Clovers, generally seem to follow civilized man. Dr. Prior states that in Queen Elizabeth's time, the water-cress was used by the Irish as the shamrock. Some have supposed that the *Oxalis acetosella*, which is a true native of Ireland, might be the plant used by the Saint. Dr. Prior, states that this is certainly without the smallest shadow of reason; but there is very good reason indeed for it, for if it be granted that the clovers were not in Ireland in the Saint's time, without the Oxalis, which is very abundant and a true native, the legend would in a measure fail entirely, as there is no other trifoliate leaf likely to have been accessible.

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ANNALS OF HORTICULTURE IN NORTH AMERICA FOR 1893, BY L. H. BAILEY.—This is the fifth of the eminently useful series of Prof. Bailey's, showing the annual advancement of horticulture in our country. This one deals mainly with the facts as brought out by the Columbian Exposition, of which every one who saw or heard of the magnificent affair, will be glad to have such a succinct reminder. It is published by Orange Judd Company, New York.

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THE OLEANDER. — The rhododendron of ancient history, reported as producing poisonous honey, which when eaten by the soldiers of Xerxes made them mad, is believed to have been the oleander. It is still called "Laurier Rose"—rose laurel, in France.

GREENHOUSE OF JOSEPH H. WHITE, BROOKLINE.—Among the cultivators of house plants by amateurs in America, probably one of the most successful is Mr. Joseph H. White, of Brookline, Mass. He has no less than nine separate houses, in which many varieties are forced and winter flowers grown. One of the houses is devoted wholly to palms, or palm-like plants, and in this house are gathered rare species from the East Indies, Australia, Cuba, Isle of Bourbon, the Pacific Islands, and parts of tropical America, thus giving one an admirable idea of the chief forest features of the warmer parts of the globe. The curious Aroid, *Monstera deliciosa*, of which we gave an illustration, taken from the Missouri Botanic Gardens, in our last volume, is growing here to perfection and yields its luscious fruit of a somewhat pine-apple flavor in considerable abundance; then there are two houses for flowering plants; one chiefly for those from the warmer parts of the world, and in which fine foliage is one of the chief attractions; the other a color house, in which plants are valued chiefly for their blooming properties. Then there is what is now an essential adjunct to almost all good places where flowers are grown, a rose house, in which the plants are grown in beds and borders and forced for the sake of having plenty of winter bloom. Some of the other houses are expressly for fruits. An early grape house, and a late grape house, and a peach house are especial features.

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CHRISTMAS TREES—An essay before a recent meeting of a Forestry association deplores what it terms the "craze" for Christmas trees, by so much, the author insists, fostering a spirit destructive of the growing forests. To our mind that which gives human pleasure is not waste,—and what pleasure does not float around the memories of the Christmas tree! Even from the timber-growing standpoint, little harm is done, as in the Atlantic states they are confined chiefly to red spruce and balsam fir, — not by any means of great import in timber calculations. Kinds that are valuable for timber rarely come in. It is to be regretted that the first inventor of the Christmas tree cannot be known, and a monument built to his memory. The idea originated in Germany. The legend is that the Christ-child, disguised as a vagabond, went to a cottage for shelter, and was not turned away. The forester made him happy. It was Christmas, and the wanderer took a sprig from a bunch of green on the mantel and planted it by the cottage door. For ever after as it grew, on Christmas day, it was loaded with gifts which it bore for the forester's family. Thus far in the realm of story lies buried the good deed of the inventor of the Christmas tree.

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MERTENS.—The following fact in regard to the Mertens, after whom *Mertensia* was named, is supplied by Dr. F. Brendel:

"Francis Charles Mertens, born at Bielefeld, 1764 (died 1831, at Bremen), was professor in the Mercantile School in Bremen, and worked with Roth, who named the new genus *Mertensia* after his friend.

The son of F. C. Mertens was Charles Henry Mertens, born in Bremen, 1796, who collected in Sitka. He died in St. Petersburg soon after his return, 1830. His collection was described and published by Bongard."

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SOUTHERN GARDENING.—Gardening in the South is different from gardening in the North, and we must not complain when some southern people contend that northern practical hints hardly reach their necessities. But if there are not many exclusively southern horticultural serials, some southern catalogues worthily fill the void. The catalogues of P. J. Berckmans, Augusta, Ga., and G. Onderdonk, of Nursery, Victoria Co., Texas, are as valuable guides to southern gardening as a $2 book would be.

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THE CHARTER OAK OF CONNECTICUT.—Some controversy has arisen as to what species the Charter Oak of Connecticut belongs. The writer of this can say, through the kindness of Dr. Russell, of Hartford, Conn., he was able to judge from material furnished him, that the species was of the common white oak—*Quercus alba*.

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THE SENATORIAL OAK.—The oak has been poetically described as the "Green Robed Senator of the Mighty Woods." It is a gratifying thought that there is something in nature to uphold the noble distinction which for so many ages gave dignity to the toga of a senator.

# GENERAL NOTES.

THE COLORED ILLUSTRATIONS.—We take a pardonable pride in the good work we are doing for popular botany, which is brought about not merely by the illustrations and popular chapters themselves, but in the train of thought, which our plates and chapters must necessarily give rise to. This is especially illustrated in the case of the *Trillium* plate. Comparatively little was known of this plant, except that the botanist was able to distinguish it when he met with it; but during the past few months so many points of information have succeeded one after the other, that it is safe to assume that the plant was never so well known as it is to-day,—and what is true of the development in the case of the *Trillium*, is just as true of all the plants that have been illustrated. It was believed that when MEEHANS' MONTHLY was started, it would render good service to popular botany, and we really think that the result has proved it far more useful than ever thought of when the project was first entertained.

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THE MILLION-DOLLAR WEED BILL. — The more one studies over agricultural legislation, the more absurd does most of it seem,—but the most scandalous waste is usually in the direction of weeds, fruit tree diseases and forest fires. In relation to forest fires the recent hundred million dollar losses are the best evidence of the legislative failures. Of the weed business Mr. J. B. Olcott says: "I was glad to see your notice of the 'Million Bill' for weeds: I am making a two-months' count of seedling weeds in this turf garden—none having been grown or applied for the past four or five years,—with a view of adding to our knowledge of the life of seeds in the ground."

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THE POISONOUS ELDER. — Sarah B. Cone, Stockbridge, Mass., notes that in New England the black-berried elder is known as "Sweet Elder," and the red-berried as "Poison Elder." The leaves, flowers, berries, bark, and pith of the sweet elder are all in common use. "Having every year gathered and used 'sweet elder,' and known the poisonous plant, I am astonished," she says, "that others do not recognize them."

The most useful people are those who doubt. The conductors of this magazine feel sure that the roots which have such a fatal effect, were of the common black or purple-berried elder,—but in a case of so much importance the matter will be gone over again. Experiments will soon be made by toxicologists in one of our prominent institutions.

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THE STARR GARDEN PARK.—Of this piece of philanthrophy in Philadelphia, J. T. M. writes:—"On page 121 of your August issue of MEEHANS' MONTHLY, have you not made a mistake in giving credit to "Charles" instead of Theodore Starr as the giver of the property in question?

My friend was an active worker in the "slums," and I think he should have the credit if it belongs to him. "The Starr Garden" and "The Theodore Starr Savings Bank" I know were both named after him."

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SOUTHERN FLORIDA.—Mr. A. C. CLAVEL, of Wauchela, Florida, gives a glowing account of that section as adapted to fruit and vegetable growing. He says the prevalent idea that the country is swampy is erroneous. It is, he thinks, a paragon of health.

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A LARGE CRAPE MYRTLE.—Mr. Albert L. Willis notices a pair of crape myrtle trees near the garden gates of Mr. James Coles, of Cloverdale, Northumberland Co., Va., that are 27 feet high.

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A COSTLY FUNERAL WREATH. — A Paris florist charged the Emperor of Russia $1,000 for a wreath ordered for the funeral of President Carnot.

# ASPIDIUM THELYPTERIS.

## MARSH SHIELD FERN.

### NATURAL ORDER, FILICES.

A. THELYPTERIS, SWARTZ.—Frond smoothish, lance-ovate; leaflets slender, distant, deeply pinnatifid, gradually shorter from near the base upwards; segments acute, margins reflexed in fruit; sori in 2 lines, as near the mid-vein as the margin. A delicate fern, in damp shades, frequent, about 1 foot high, half as wide. Leaflets 2 to 3 inches long, about 20 pairs, lowest pair as long as any. Wood's *Class Book of Botany*. See also Gray's *Manual of Botany*, and Chapman's *Flora of the Southern United States*.

Professor Wood, from whose "Class Book" the main description is taken, as more nearly according with the plant growing near Philadelphia from which the drawing was made, does not give to *Asplenium Filix-fœmina* the common name of lady fern by which it is known in polite literature, but accords to this species the title, and it might perhaps save popular confusion if this were styled the American lady fern. "American," however, in this case, could hardly refer to the name above, as the plant itself is not distinctively American, but is found native over a vast extent of territory, making up, indeed, part of the flora of Japan. Popular names are, however, under no such control as botanical names are, and this has very different names in different places—"Marsh Shield Fern" is sometimes given to it.

It is worthy of remark in connection with the existence of this fern in Japan, that among the ferns of the United States there is a species closely-allied to the one here illustrated. *A. Novaboracense*, so nearly allied that it received from Michaux the name of *A. thelypteroides* before it was found to be identical with Willdenow's plant as just named, and this also is among the recent discoveries in the Japan flora. The study of the geographical distribution of plants is becoming a fascinating branch of botany. It is found to have close connection with many live questions, as they are termed, of warm interest to mankind. In this case the question of the origin of species is closely related. The two ferns under discussion are so closely allied that evolutionists would readily admit that each was derived from the same ancestor. If the first or primary departure was induced by conditions of environment, it is difficult to conceive of any one condition that should at the same time effect a departure from a type on one hand, and yet permit that type to persistently hold its own; and still more difficult that precisely the same circumstances should occur in the evolution of these forms under the very different conditions prevailing in the Eastern Atlantic States. The point is not made to weaken the many well attested facts brought forward to prove that environment can influence change of form, but only that facts which seem opposed to that view may also receive attention. The allied *A. Novaboracense* is common in the Himalayan mountains, and no doubt the species under discussion might be found there also, if carefully searched for.

The study of ferns extends the season of collecting which gives so much zest to botanical pursuits, as fronds can be collected through most of the winter season, though many, as in the case of our marsh shield fern, turn brown in the fall and die during the winter season. Though dead they serve good purposes under critical examination. The lover of gay flowers feels that the approach of winter may be the end of all for him till spring returns again; but to the fern lover the winter brings simply, in the language of Longfellow,

> "A feeling of sadness and longing,
> That is not akin to pain,
> And resembles sorrow only
> As the mist resembles rain."

The starting into growth of ferns affords matter of special interest, as the manner is as varied as the forms of the fronds themselves. In this species they push up very early in spring, and the sori or fruit dots appear in small quantities in July, but are not abundant till August,

and then mostly appear in the upper portion of the fronds. Late in the season fronds may be found abundantly prolific, and it is these which give so much pleasure to the belated collector, and often long after all the pretty flowers are gone for the season.

The marsh shield fern not only resembles but often grows in low damp places together with the *A. Noveboracense*, from which it is however readily distinguished, first by the want of glands on the indusium, giving out a lemon scent when bruised; and secondly by the habit which the marsh shield fern has of turning down the edges of the pinnules when in fruit, so as to give them a somewhat triangular appearance. The artist, Mr. Lunzer, with his usual love of a complete series of instructive detail, has given a representation of a whole fruiting frond in Fig 1, with the most of the pinnules reflexed. A portion of a barren one is given in Fig 4, which shows regular oval outlines. The under surface of the barren and fertile fronds is also given. In Fig 2, we have the barren ovate form, in Fig 3 the fertile, with the recurved edges already noted as giving the somewhat triangular outline to the pinnule. These beautiful drawings enable us to give the reader a lesson on venation, not perhaps so easily taught in fern lessons before. It may be remarked that the venation, or the manner in which the veins of ferns are disposed, has often been relied on for generic distinctions. Complete systems have been established on the character of the veining. There is undoubtedly a considerable individuality of character in the manner of veining, but we see here that this again can be modified by sexual influence. The veins in the barren or male frond (Fig 2) are more numerously branched than in the female, while the mid-rib is more markedly flexuous or wavy. It shows that if good characters are to be drawn from the veins, the subjects of comparison should be of nearly the same age and condition as possible, and especially as regards the conditions of sexuality. The pretty sketch (Fig. 3) affords a good opportunity for a lesson on the origin of the name shield fern. In "The Flowers and Ferns of the United States," series 1, Vol. II., page 38, *Aspidium acrostichoides* is figured; and in series 2, Vol. I, page 81, *A. fragrans;* page 113, *A. ebenoides;* 129, *A. Nevadense*; 161, *A. munitum;* and Vol. II., 161, *A. cristata*; but this shows the generic character better than all, in the shield-like or buckler-formed indusium in the center of each sori or cluster of spore cases. If these were drawn in a little on one side, so as to be somewhat kidney-shaped, it would constitute the sub-section of *Nephrodium*. *Aspidion*, the Greek for shield, it can be readily understood, furnishes the name for the genus. The very slight delicate frond in contrast with some of the more vigorous kinds, especially such as *A. Filix-mas*, probably suggested the name "Thelypteris," from the Greek *thelys*, woman, and *pteris* fern, and, after all, this may have been the reason for Prof. Wood suggesting the name of "Lady Fern" as its popular designation, and not because that name was already popular.

In rooting it is just as delicate as in throwing up its fronds. For a considerable distance round the earth is permeated by large numbers of cord-like rhizomes such as represented in Fig 5.

In many species of ferns good characters can be derived from the length of the lower portion of the frond,—the stipe. Often they are very short, the frond might be almost termed sessile. It will be seen from the plate that in this species the stipe is very long, proportionately to other ferns. Some botanists include the stipe in the expression "frond," and thus give the height of the "fronds" of this fern as about fifteen inches. This would make the Pennsylvania specimens, selected for the plate, rather above the average size. It must also fruit more abundantly here than elsewhere, as European authors on ferns frequently write of the rarity with which they meet with good fruiting specimens. Bromfield, in the "Flora Vectensis," remarks that it is only when very fine that good fruiting specimens are found, showing that in some way or other highly vigorous conditions are essential to fruit bearing—or in other words high vital power is the co-relative of the female sex.

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EXPLANATION OF THE PLATE.—1. Perfect specimen in two sections, from a Pennsylvania plant.—2. Venation of the barren pinnule.—3. The same of the female.—4. Outlines of barren pinnules.—5 Section of rhizome.

# WILD FLOWERS AND NATURE.

## A MOUNTAIN STREAM.

It was a mountain stream that with the leap
Of its impatient waters had worn out
A channel in the rock, and wash'd away
The earth that had upheld the tall old trees,
Till it was darkened with the shadowy arch
Of the o'er leaning branches. Here and there
It loiter'd in a broad and limpid pool
That circled round demurely, and anon
Sprung violently over where the rock
Fell suddenly, and bore its bubbles on,
Till they were broken by the hanging moss,
As anger with a gentle word grows calm.

—N. P. Willis

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Fertility of Clematis Virginiana.—A correspondent says: "The experience of Mr. Frank E. Lord, that the virgin's bower, bears only staminate flowers in the vicinity of Chicago, as noted in Meehans' Monthly for October, is not confirmed by mine. The plant is found in the southeastern part of the city by the margins of woods bordering upon wet land. Though not abundant, it is not difficult to find fruit with long plumose tails in this locality, in September and October. The white flowers earlier in the season are apt to be more numerous, since the fertile plants are evidently less floriferous than the staminate. I cannot speak definitely of other localities, for this is the first intimation of the rareness or absence of fertile flowers, though nothing unusual has been remarked of them elsewhere. I have, however, more often seen the staminate plant in cultivation, but thought it probable that the strong flowers attracted the attention of those who are not acquainted with its dicœcious habit."

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Behavior of Lily Flowers. — Dr. Wm. Seaman says: "Have you ever noticed the *Lilium superbum* as regards its pollination? I have three stems near my window, and have watched them. They had about twenty-four flowers, and eight of them, for some cause, possibly an unseen insect, had about half the pistil cut off before opening.

The others apparently have the anthers burst before the petals separate at all, so that as soon as the flower opens on one side only the pistil may by seen, well provided with pollen. After the flower is open, the stamens, which have hugged the pistil, bend outwards in the well known manner; and the pistil, at first standing straight, gradually bends toward some one stamen, in my case, always towards the sun, the plants standing along side of a wall. Apparently here is especial provision for self-fertilization before opening. I used to think the pistil turned round with the sun, to touch several stamens, but in this case it certainly did not."

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Lippia lanceolata.—Few would imagine that the delightful lemon verbena, *Lippia citriodora*, had relatives wholly undesirable. But among the wild flowers of the Southern States, *L. lanccolata* is not always welcome. The *Florida Dispatch*, treating of the weeds of that State, says of it.—"This is a creeping plant found in low cultivated or waste grounds, with opposite, oblong or oblanceolate leaves, serrate above. The flowers are in dense heads, small, bluish-white, on long, slender, solitary peduncles which arise from the axils of the leaves. It is a perennial and when once established in moist cultivated land, I should say, from its appearance, would be difficult to eradicate. It is a good pasture plant, though not so valuable as some others."

It has the common name of "Fog plant" there, but how derived is not apparent.

*Lippia lanceolata*, by the way, is not distinct from *L. nodiflora*, by which name both forms are now generally known.

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Diplopappus linariifolius. — In eastern Pennsylvania and New Jersey one of the earliest of the aster family, as well as one of the most beautiful to warn us of the approach of autumn is *Diplopappus linariifolius*. Botanists separate it from aster proper, by reason of its diplo—or double pappus,—but to the common observer it serves as an aster in approaching fall scenery.

THE WOOD-GROWTH OF TREES.—Mr. James Stewart, one of the most intelligent horticulturists of the South, has been engaged by the *Memphis Appeal*, to take charge of one of the agricultural departments of its weekly edition. In the column before the writer is a note by him on the annual ring-growth of trees. He knew a case of a tree 25 years old, which when cut down, exhibited 75 concentric rings. The name of the tree is not given.

THE MEXICAN JUMPING BEAN.—Seeds of this Euphorbiaceous plant, related to the castor oil plant, are sold in the curiosity shops for 25 cents each. Letters come to this office asking about the new wonder. It is simply the case of a maggot, or "worm" as these creatures are called, rocking its own cradle. It is quite probable that in a round pea, motion might be observed if closely watched before the "worm" crawled out of it.

CLEMATIS PITCHERI.—The Virgin's bower is the only clematis found wild in the immediate vicinity of Chicago. But *Clematis Pitcheri* is not far away, being found at Joliet, on the Desplaines River, and along the Kankakee River, localities forty to fifty miles south of this city. It is quite abundant in the thickets which here and there line the banks of the Kankakee, climbing up among the shrubs. The thick, leathery sepals of the flowers are of a dull or greenish purple color. The flowers are bell-shaped, or rather, urn-shaped, and somewhat smaller than the brighter purple flowers of *Clematis Viorna*, the common leather flower, or its scarlet variety, *coccinea*, frequent in cultivation. The appendages of the fruit are short, and often nearly or quite destitute of hairs. When very short and stout, as is sometimes the case, they resemble horns. The blossoms are borne singly, on pretty, long stems, and appear the early part of June, but continue to August, when the fruit of the earlier ones is ripening, so that flowers and fruit may be found on the vines at the same time. It is closely allied, especially in its foliage, to *Clematis Viorna*, found rarely in the southern half of Illinois, but more common to the east and south. The range of *Clematis Pitcheri* has been considerably extended since it was first brought to notice by Dr. Pitcher, on the Red River in Arkansas. It is now given in our botanies as ranging from southern Indiana to Kansas and Nebraska, and south to Texas. The localities I have mentioned for this part of Illinois, Joliet, and the Kankakee River, nearly up to the line of Indiana, are the farthest reported for its extension to the northeast, but it goes farther north in Iowa. It is mainly a Mississippi Valley plant, though Dr. Coulter states that it is also the most common leather flower of the valleys of southern and western Texas. E. J. HILL.

SALSOLA TRAGUS.—The illustrated literature, and literature not illustrated of this plant, has been something wonderful. Even institutions of high character have issued papers far from being creditable. Bulletin No. 26 of the Iowa Agricultural Experiment Station at Ames, is an honorable exception, and MEEHANS' MONTHLY has pleasure in transferring its excellent illustration to its pages (see page 181), as many will be pleased to make the acquaintance of a plant which is powerful enough to disturb so august a body as the United States Congress. The Bulletin cited shows that the plant is not nearly so dangerous a pest as innumerable other weeds,—that it can never be troublesome where cultivation, properly so called, is carried on, it being an annual and readily destroyed the first time the cultivator goes through.

The picture gives the whole life-history of the plant. *A* is a portion of the plant just beginning to bear seed; *b* is a young plant just starting from seed, and looking like a seedling pine; *c* is a flower, *d* the calyx lobes and young fruit, and *e* the seed; *f* is the cotyledon, as it appears, rolled up in the seed,—all these parts, of course, magnified. The picture was originally made for one of the United States Bulletins. The plant was originally named *Salsola Tragus* by Linnæus. Some botanists have regarded it as but a variety of *Salsola Kali*, which is found along sea coasts everywhere. But language is simply for the proper conveyance of our thoughts to one another, and no one will go wrong in conversation by using the short Linnæan binomial, in place of "Salsola kali variety Tragus," which phrase need have a place only in botanical monographs. Russian thistle is a common name given to it from its prickly character when dry.

PLATE VII.

RUSSIAN THISTLE. *a* mature plant. *b* seedling, about two weeks after germination, natural size. *c* flower detached from the axil and remaining suspended by minute hairs in the ordinary inverted position on a rolling plant enlarged 3 diameters. *d* flower viewed from above and in front, showing the calyx lobes forming a cone-shaped body, and the large membranaceous spreading wings, enlarged 3 diameters. *e* seed, with flower part removed; enlarged 5 diameters. *f* embryo removed from the seed, enlarged 7 diameters. After L. H. Dewey, U. S. Dept. of Agr., Bull. No. 15.—(See page 180.)

COMBINATIONS IN FLOWERS. — When some beautiful combination of garden plants is brought before us, we are very apt to think that the florist's skill is far superior to the accidents of nature; but this is by no means the case, as the lovers of wild flowers can frequently testify. Among one of the most beautiful combinations that the writer of this paragraph has recently seen, was one on Mt. Desert Island, in Maine. A large mass of the common blueberry of that region, *Vaccinium Pennsylvanicum*, formed the chief ground of the carpet figure,—interspersed with this was a large quantity of the dwarf dogwood, *Cornus Canadensis*, with bright scarlet berries, called bunch-berries by the people of this section, interspersed through with a few stalks of one of the golden-rods, which, although in the end of July, was that early in full bloom. The patch was almost circular, and around the edge of this circular patch was a mass of dwarfish creeping blackberry, *Rubus hispidus*, in full flower. This is a very low and delicately twigged species, and the white, star-like blossoms were in such profusion that the foliage could scarcely be seen, although the whole growth was not more than two or three inches in height; this formed a sort of border around the whole, and the effect was equal to the best efforts of the gardener's art.

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CROW'S NEST BRANCHES. — Crow's nest branches in the ordinary garden cherry—or at least on wild specimens of the tree, are formed through the work of a fungus, *Exoascus Weisneri*. Once established on the branch it makes a permanent home, but does not spread to other portions of the tree. The cherry forms spurs on which flowers and fruit eventually appear. In the "crow's nest" condition there are no flowers or spurs. By the operation of the fungus, what would be spurs are developed into small branches. It is this which produces the "crow's nest" condition, and is an excellent illustration of the influence which small fungi may have in producing change of form in plants.

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PENTSTEMON COBÆA.—Mr. Reverchon near Dallas, Texas, has a word of praise for the faithful picture of this plant which appeared in a recent issue of MEEHANS' MONTHLY. He says it grows abundantly in north and middle Texas, liking especially those localities where the lime-stone rock is exposed. It covers these rocks with beautiful bloom from April to the end of May, and if the season is a little dry, will again flower somewhat freely in the fall. He says that the colors in the wild flowers vary very much, some nearly white, and the purple ones more or less dark, and some of them pink. He regards it as one of the most beautiful, if not the most beautiful, of all the wild flowers of Texas. He says it often has many more flowers on the stem than represented in the picture. In south-western Texas, he has seen a variety comparatively dwarf, but of a whitish color. He speaks in high praise of another species—*P. Murrayana*, also particularly beautiful, and rendering the wild flower scenery of that section particularly attractive.

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BLACK WALNUT TREES.—Black walnut trees are thought to be among the most profitable of all timber trees. Furniture wood is valued as much for scarcity as well as for beauty, and black walnut furniture adds comparative scarcity to its value; still, trees of about one hundred years old are frequently sold from farms near Philadelphia, for about one hundred dollars each. Ash and oak are getting, however, comparatively scarce, and, consequently, furniture made of ash or oak is considered more the thing than when this timber was more common.

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EARLY FLOWERING FALL PLANTS.—Several friends have called attention to the fact that some of the beautiful fall blooming Cosmos flower much earlier than the bulk of plants, which do not open until September. An inquiry is made whether seedlings from these early blooming plants would inherit an early blooming character. This more than likely would be the case, and by selection, it is probable that an early blooming sort of this beautiful flower, might be obtained.

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THE SPANISH MOSS.—The Spanish moss, so familiar to travelers in the southern seaboard states, is closely related to the pine-apple family. It is in a measure indestructible, and for this reason is largely employed in stuffing mattresses, and is used in many other economical pursuits. It is said that last year 50,000 bales, worth at least $400,000, were shipped from Florida alone.

# GENERAL GARDENING.

## THE FARMER OF NORWAY.

He hated the narrow town, and all its fashions,
But he loved the freedom of his farm,
His ale at night, by the fireside warm,
Gudrun his daughter, with her flaxen tresses,
He loved his horses and his herds,
The smell of the earth, and the song of the birds,
His well-filled barns, his brook with its watercresses. —LONGFELLOW.

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VARIATIONS IN THE ODORS OF FLOWERS.—"In the July issue is an article entitled, 'Variation in the Odors of Flowers', in which the question is asked, 'Has climate anything to do with it?' I think it has. I think mignonette, roses, azaleas, in fact nearly all odoriferous flowers are more fragrant in a moist than dry atmosphere. When I came to this country I fancied that roses of the same varieties were not so fragrant as in the northeastern part of England. When I came west we were disappointed at the flowers of same species not being so fragrant as in New England, especially in our hot, parching weather, and I think you will notice that flowers are more fragrant on a dewy morning than when the ground is dry and parched. But let us go further, and see if it does not hold good in trees.

The white spruce from Maine and Lower Canada, has such a strong odor that it is called the "Skunk Spruce." The odor of this tree in the drier atmosphere of Minnesota, is not nearly as strong. I found the same tree near the summit of Terry's Peak, in the Black Hills of Dakota, and I had to rub a twig with the foliage, and bruise it in my hands, before I could perceive any odor, and what is more, I brought a small tree from Terry's Peak, and after it grew here two years, it had a perceptible odor.

Now if that is not enough, '*go to the dogs*,' if you are a hunter, and you will see how nicely he will follow scent in the morning, while the dew is on the grass, and how often he will be at fault in the heat of the day when all is dry and parched.

Many good lessons may be learned from dogs in the way of odors. You will often see a dog that has picked up a piece of meat that is so tainted, that he cannot eat it. He carries it to a place where he finds earth perfectly dry, scratches a cavity, covers the meat carefully with dry earth, goes back the next day, and digs it up free from odor; many of the human family might learn profitable lessons from dogs. A few shovels full of dry earth would deodorize many disagreeable odors in back alleys.

Many good traits may be learned from dogs. 'Dogs will not bark at those they love, nor fawn on those they hate.'"

ROBERT DOUGLAS.

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THE DWARF BUCKEYE.—The dwarf buckeye of North Carolina — *Pavia macrostachya* — is one of the brightest ornaments to gardens during the early part of July, in the vicinity of Philadelphia, where it was early introduced by botanical collectors. Specimens eight or ten feet high and as many in diameter, furnish hundreds of spikes of its beautiful white flowers, relieved by the prominent pink anthers which are numerous. It is a remarkably hardy plant, as a correspondent from Franktown, Nevada, states, that in that section, where even as late as May 25th the thermometer was down to 24°, and many native shrubs were injured, the dwarf buckeye passed through without the slightest harm, while in some cases apples and pears were killed.

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ESSEX COUNTY PARK COMMISSION. — Only those brought face to face with legislation can understand the difficulties in the way of getting anything done that is out of the common run. Newark, New Jersey, has had this experience with its proposed new park. Like many cities, it can make no special laws. This has been at length gotten over, by making the park a county affair. It is a park for Essex County and not for Newark. It is pleasant to know that the success of the project is practically assured.

RAISING FERNS FROM SPORES.—The article on "Ferns from Spores," in the September number, recalls an experience of mine, a few years ago. Through the kindness of a friend, fifty varieties of fern seed were received from Australia, I think from some government garden there. In some packages were spores only, varying much in color; and in others were pieces of fronds, with spores attached, the whole plainly showing great care in collecting and marking. Having an especial liking for ferns, I think I was never more pleased in receiving anything in the horticultural line, than in getting these seeds. I took fifty smallest size pots, filled them half up with broken cinders, laid a little sphagnum moss on top, and on the moss a thin layer of loam and sand. On this I scattered the spores, using great care in cleansing the hands, and carefully folding away each paper before taking another. The pots were then plunged in a box of damp ashes, and a large light of glass placed over the box. This glass was hardly lifted till the seeds had started, and after that, only an inch or so at long intervals. In due time (quite a long time, however,) every pot was covered with a growth of seedling ferns, and I rejoiced in the probable possession of some rare varieties. When the plants were some two inches high, they possessed a suspicious sameness, and the suspicion gave way to certainty later on, when I found that all but five of the pots had only *Pteris tremula* in them. Of the five others only two were new to me. I had no plant of *Pteris tremula* in the greenhouse, but there was a package of seed with the others. Discouraged, but not quite dismayed, I, next season, selected twenty-five of the choicest sorts, and sowed as before. Again every pot was full, but this time all were *Pteris longifolia*, of which I had several plants in the greenhouse, but had scattered no seed. I didn't try it again.

Several sorts of well-known ferns always multiplied in the greenhouse, but never where I had sown the seed. They seemed to have a preference for the sides of the pots containing other plants. I suppose I have sown enough seeds of the Mexican tree-fern, *Cibotium glaucum*, to get, perhaps, a million plants, but I never found but one, and that in an out of-the-way place. So I think the deliberate sowing of fern seed is mostly wasted time. G. A. H.

GRASS FOR LAWNS.—As our readers probably know, Mr. Jas. M. Olcott, of Manchester, Conn., has been experimenting with every kind of grass likely to be of service for lawn or agricultural purposes. He finds that among grasses as among other plants there are some varieties of species that have peculiar characteristics of their own, and the only way to have first-class lawns is to divide the roots and propagate them as we would a pear or an apple of any variety that we prefer to permanently enjoy. He finds that some thrive better in dry seasons than in wet, or in wet places than in dry, and others grow in different soils or situations, and the only way to get a good lawn is to suit the variety to the location. Much more might be done in this line with other things than grasses, all by noting occasions where different plants seem to thrive especially well. In going through a railroad cut recently, where the slope had been sodded, it was interesting to observe that after three months of an almost unheard of drought, the common millfoil, *Achillea millefolium*, had spread in every direction, forming a smooth, green, grass-like surface of wonderful beauty. The slope is kept regularly like a lawn, yet in these particular positions this plant had found itself quite at home. In another place the writer came across an embankment of a somewhat rocky character, the slope had been turfed up to the rocks and within a mass of rigid rocks left exposed; but in these rocks the common wild convolvulus of England had found a home, and had covered these rocks completely, and the beautiful pink morning-glory-like flowers had a wonderfully pretty effect. This plant is considered a terrible weed when it gets into gardens, on account of every little piece of root sprouting and making another plant, so that in digging it up to destroy, it very often tends only to distribute it more widely; but in such situations as described no harm could possibly result from it, while we get the full benefit of its real beauty.

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THE GOLDEN-LEAVED HOP TREE.—A correspondent from near Chicago, Ills., notes that the golden-leaved hop tree—*Ptelea trifoliata* is one of the most beautiful of all the golden-leaved shrubs that have been tried so far, in that region.

THE SUGAR ORCHARD.—Mr. Timothy G. Wheeler, Waterbury Centre, Vermont, says :

"In Vermont the most of our sugar is made in April, or occasionally commencing the last days of March. We get no sap in a uniform temperature, and being far removed from large bodies of water our temperature, which alone can give us suitable conditions for sap-flow, is variable. For sap to flow the tree must be alternately in opposite conditions as relates to *pressure* and *suction*, and nothing but the rise and fall of the temperature indicates this condition. Frost and heat alone (in our climate) will break down the granules of starch from which the sugar is derived, involving a chemical change. Near large bodies of water these changes do not exist. I am creditably informed that in New Brunswick there are large forests of sugar maples, but no sap can be obtained from them, as the temperature is uniform. Trees fifteen or sixteen years old, if grown on *good* land, will be ready to tap, if done with a small bit, three-eighths of an inch at most, and about half an inch deep. The younger the wood the sweeter the sap, so the deeper we bore the darker and poorer the sugar, and there is less of it; that is, from a hole bored six inches deep in an ordinary sized tree, it will be found that the sap from the first two inches will make twice the amount of sugar that the sap from the last two inches will make. Sugar orchards vary much in their productiveness, say from two to ten pounds of sugar per tree. Trees standing in the wilderness make the least sugar, while those scattered on open land make the most. Once in a great while an orchard can be found that will average ten pounds to a tree. Individual trees vary still more. I am acquainted with one tree the sap of which contains seven per cent. of sugar, and from which there has been made, in one season, thirty and three-fourth pounds of sugar. Five quarts of sap from the sweetest tree that I have been able to find, will make one pound of sugar, while it will take sixteen quarts of average sap to do this."

NORWAY SPRUCE AT LANDRETH'S SEED FARM, BRISTOL, PA.—SEE PAGE 186.

AIR PLANTS.—Plants that grow on trees and walls, or have other means of support above the ground are called "air plants" because they get their food mainly from the atmosphere. In reality, however, all plants are "air plants"—it makes little difference whether the plants grow supported in the air or whether they are growing in the earth, they take in their food only through a gaseous element. Plants do not absorb water when it is already in the condition of water, but simply as aqueous vapor, and they do this just the same under the ground as above the ground. Unless there is air in the soil it is impossible for a plant to live. This is well illustrated by those who are familiar with the building of railroad embankments, or with other work temporarily obstructing the drainage of water, and by which little pools are formed among growing vegetation. Acres of growing plants may, in this way, be totally destroyed, by being submerged but for a few days only. It is believed that even the mineral elements of the soil are in some way vaporized, so to say, by root action, and taken into the plant structure, when in this finely divided condition. At any rate plants known as "air plants," which get their living when sustained in the atmosphere, contain nearly as much of mineral matter when burnt, as similar plants do when growing in the ground. These principles are of great practical value to the cultivator. Close compact soil devoid of air is unfavorable to plant growth. Digging and cultivating is just as much for the purpose of admitting fresh air as for any other purpose, and it is believed that one of the offices of rain is to help get rid of air in the soil, which has become vitiated, one might say, by plant action. When the water enters the soil the impure air is expelled, and when the water passes away fresh air follows into the spaces which the water occupied. It is for the same reason that a hole is necessary in the bottom of a flower pot.—water passes rapidly away, which is given to the plant only that a fresh supply of air may follow into the spaces vacated by the water. It is well known to the practical plant grower, that the more rapidly the water flows out of the flower pot, as a general rule the healthier is the plant.

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FLOWERS IN THE SHADE.—It is not unusual to hear a complaint that one's yard has no sun, and, therefore, flowers cannot be raised; but there are a large number of flowers which prefer shade to sunshine, in summer. The *Begonia* is of this class. Those who have north walls or fences, may have great beauty during the summer, by setting out the different kinds of *Begonias*. Even the *Gloxinia*, the *Achimenes*, and similar hot-house plants bloom splendidly throughout the summer season, when grown on the north side of walls.

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SHRUBBY MAGNOLIAS.—The dwarf magnolias are not as common in cultivation as they deserve to be, the large tree kind being the most popular. There are few strong shrubs more desirable than the purple flowered magnolia. The leaves are large and glossy, and the flowers a deep, rosy purple color—particularly showy. There are several varieties under cultivation, but so nearly alike that one form is nearly as good as another for general ornamental purposes.

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THE CHINESE ARBOR-VITÆ.—For some unexpected reason, nurserymen in recent times seldom get orders for the Chinese arbor-vitæ, yet it is one of the best evergreens. It requires, however, a little management, when young, to prevent more than one leading shoot getting an ascendency. If there are several leading shoots allowed to grow up, they fall apart during snow storms, and become very unsightly; but trained up to a single stem, when young, they they make beautiful small trees.

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FODDER PLANTS FOR DRY PLACES.—Among the comparatively unknown plants recommended for dry places is *Hedysarum coronarium*. This is known in the language of the natives as sulla, in the dry regions of the Old World. It so happens for our country that the alfalfa has been found so thoroughly suited to our comparatively desert lands that there seems to be an indisposition to look for anything better.

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WILD FLOWER TRADE.—The trade in cut wild flowers is beginning to be an important business in the large cities. Wild ferns, especially those with leathery leaves, are an especial feature. The Christmas fern, *Aspidium acrostichoides*, is largely drawn on. It is estimated that five millions of fronds of this fern were sold in Philadelphia last year.

ORCHIDS FOR CUT FLOWERS. — So many beautiful flowers drop their petals soon after cutting, that they are out of favor with purchasers. The efforts of florists are generally in the direction of introducing such flowers as will hold their own for some time after cutting. It is possibly one of the leading advantages of the carnation that it lasts so long on the parlor table; and this is found to be true with many species of orchids which are coming into favor for cutting purposes, quite as much on account of this persistence as on account of their rarity and sweetness. In this closely related family the Cypripedium is found particularly valuable. There is not only persistence, sweetness and curious features in the forms and colors of the flowers; but they also have the long stems which enable the American florists to use them without the necessity of lavishly stemming them.

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HEDGE PLANTS.—Hedges for protection are not as common as they might be. They are not only beautiful in themselves, but, if properly managed, are cheaper than any fence—except a stone wall. There are numberless instances of well-cared-for osage orange and honey locust hedges being kept in first-rate condition for half a century, and there is no reason to believe they might not last for nearly as long again. They have to be annually trimmed, and, indeed, are the better for two trimmings a year; but one who understands this will get over the work so rapidly, that it takes little more time than it would to give the annual white-washing to an ordinary fence. When the expression "well cared for" is used, it simply means that the cutting must always be of such a character that the bottom of the hedge is left the widest part.

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THE CUNNINGHAMIA.—Mr. Ed. Tatnall reports that in the Wilmington and Brandywine cemetery, near Wilmington, Del., there is a specimen of the rare evergreen, *Cunninghamia Sinensis* which is fully 20 feet high. The points of the branches are usually killed, but it manages to gain in height. The injury appears more from hot sun in summer than the winter cold. This is not Chili pine, which in England is quite hardy, and is known as "Monkey Puzzle," probably because the tree defies a monkey to climb it.

## FRUITS AND VEGETABLES.

EARLY VEGETABLES.—Notwithstanding the general feeling that vegetables can be brought up from the far South, at so little cost, that it is not profitable to raise them under glass in the North, some few find that this is anything but a fact. Mr. W. W. Rawson, of Arlington, Mass., has 120,000 square feet of ground under glass, especially devoted to growing lettuce and cucumbers. The seed is sown in August. He has had at one time 15,000 dozen of lettuces ready to cut. He has eight houses used expressly for growing the lettuce to a head. It takes about eight weeks before they are ready for market. He commences to cut in October, continuing through November, December and January. By having this succession of houses, he can cut about 3000 dozen a week. He has had from ten to fifteen thousand cucumbers ready to cut in a single day. Some parts of the year the lettuce and cucumbers can be produced under hot bed sash, so that he has these vegetables at command the whole season through. Mr. Rawson has been in the business for fifteen years, and as he continues to enlarge his plant from year to year, it is evident that the business must be profitable when conducted intelligently as this one seems to be.

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GROWING CUCUMBERS.—Those who are only acquainted with the growth of cucumbers, in large tracts, where they trail upon the ground, can have no idea of the extraordinary vigor that they show when growing over small trees or twigy bushes; an enormous increase of fruit is the result. This cannot be carried on to any great extent where the cucumber is grown extensively as a farm crop, because of the difficulty of getting strong stout brush-wood on which to train the plants. One could not store up brush-wood in advance for this purpose, it would not be profitable perhaps; but in a garden where only some dozen or so of plants are required it is an excellent practice to have stout bushy branches planted, as one would a bean-pole, on which to allow the cucumbers to run. One may get as many cucumbers from one plant so trained as from a dozen suffered to trail over the ground, besides the advantages of the plants occupying much less space.

THE NORWAY SPRUCE AS A BEAUTIFUL TREE WHEN OLD.—An impression prevails that the Norway spruce loses its beauty early in life. This will depend in a great measure on the quality of the soil. Nearly all plants of the spruce and pine family begin to weaken in their lower branches as soon as the seed bearing time arrives. This is usually when the plant is about twenty-five years old ; but if the tree is growing in rich soil, or where it can get an abundance of good food, the tree will not commence to cone until many years later than this. Under these favorable circumstances a Norway spruce is just as handsome between twenty and fifty years as when it is young. We give on page 185, an illustration of some fine specimens growing on the grounds of Mr. Burnett Landreth, near Bristol, Pa., which are over forty years old. Very many noble specimens are to be seen in the vicinity of Philadelphia, and doubtless in many other places. It is poverty of the soil, exposure to cutting wintery blasts, or neglect to furnish surface fertilizers, which cause Norway spruces to get poverty stricken when young.

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THE INJURY OF FRUIT BY BEES.—The honey bee is not able to pierce the skin of fruits ; but they have the power of getting in between the joints, as one might say, consequently they manage to work in between the pips of the raspberry, and also into the grape, near its junction, and in this way, crops of grapes and raspberries are wholly ruined by bees. They are powerless to injure other fruits, except such as may afford similar appearances to those which the raspberry and the grape present. This is also true in the case of flowers, they are unable to pierce the tube of those flowers which contain honey ; but humble bees bore the flowers, and the honey bees take charge of the slits made by their stronger neighbors, and gather the honey from the tubes in this way.

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PRESERVATION OF FRUITS.—The question "Of what use is the study of abstract science," is fully answered by the many practical uses which follow discoveries supposed to be trifling, —for instance, now that it is known that nearly all diseases come from minute vegetable or animal organisms, which go by the name of microbes, it is much more easy to deal with their destruction by the use of gases known to be inimical to life, than it was before. For instance, carbonic acid gas has long been known to be destructive to life. But little practical use has been made of this scientific fact, but now that the knowledge before referred to has been gained, practical use is being made of this gas for the destruction of these minute organisms, and to preserve fruit from decay. The application of carbonic acid gas in this manner is, however, yet in its infancy, but experiments so far made seem to indicate that it will be much cheaper and better in every way to employ this gas for the preservation of fruit in railroad traveling than the present more costly refrigerator cars.

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PROFITABLE STRAWBERRIES.—The great difference between amateur gardening and gardening for market is no better shown than by strawberry culture. The amateur gardener wants good fruit at all times whenever he can get it—the question of cost is not so material, but the market grower must necessarily look to cash profits for his reward. In an amateur's well conducted garden the early strawberry is very welcome ; but no fruit grower for profit cares much for planting the extra early varieties of strawberries,—to him a large crop that can be gathered at once is far more profitable than the less prolific varieties, scattered over a wider season.

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THE BUSHBERG GRAPE CATALOGUE. — Though issued as a "catalogue" of a firm dealing in grape vines, it is really a complete manual of grape culture, and the whole subject is treated in a broadly intelligent manner. If asked for the best work on American grape culture no fairer answer would be "the Bushberg catalogue." This is the fourth edition issued by Bush & Son and Meissner, Bushberg, Jefferson Co., Missouri.

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DAHLIAS.—The drouth which occurred in many places arrested the growth of the dahlia —when the late summer rains came, foliage instead of flowers, was produced. Mrs. Seliger, the writer of the garden notes of the Hartford *Courant*, indicates that they were showy in that section at least. "The Belle of Hartford," a clear, velvety crimson, "is exquisite," says she.

CULTURE OF PEACH TREES.—The southern growers of peach trees say that it is impossible to successfully cultivate the peach without a free use of the pruning-knife. Every winter they should be gone over, and the weak, starved shoots cut out. Only the strong, healthy, vigorous branches are left to bear leaves and flowers by the expert peach grower.

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ENGLISH GOOSEBERRIES IN AMERICA. — Those fruit culturists, who may have had the experience of half a century, must have noted the recurrence, at various times, of waves in fruit culture, and especially in connection with English gooseberry. In America this species of gooseberry is only adapted to moist northern climates. In warmer climates, where the earth in summer is comparatively cool, some one introduces a fine variety, and for the first year or two, with a stock of the Old World vigor on hand, it seems to do as well as in the Old World. The grower honestly believes that the reports of failures of English gooseberries, in the American climate, must have been founded in error, and immediately a push is made, and thousands of English gooseberries are sold; but the old story is soon told—the gooseberry leaf-mildew, and the gooseberry fruit-fungus, comes along as before, and no one cares to invest in English gooseberries. The history, of course, is soon forgotten, and another wave comes along, which lasts for a few years, only to meet with the same results. It is doubtful whether any varieties of English gooseberries will ever prove a permanent success south of Canada and New England. There will be occasionally exceptions where a plant is growing in a cool city yard, or in some other favorite locality, but the rule will be against success.

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AMERICAN STRAWBERRIES.—There are really but three good species of wild strawberry, though attempts have been made to make more on slight distinctions. The common wild strawberry of the eastern slope is *Fragaria Virginiana*. This is the parent of the improved garden strawberry. On the western slope of the Continent, *Fragaria Chilœnsis* appears. This has very thick, coarse foliage, large flowers, and whiteish pink fruit. It is thought that some of the old world garden varieties are mixtures of this and the Virginian scarlet, but this is mere guess work.

*Fragaria vesca* is the other species. This is usually found in mountainous regions or in high northern latitudes; but very few of our botanists or lovers of wild flowers know how to distinguish it. This thought has induced the annexed illustration for which we are indebted to Messrs. Vilmoria, Andrieux & Co. It can be readily distinguished by the leaves being generally smaller than those of the other species, and very much plaited. The seeds, as well shown in the illustration are very numerous, small, prominent, and the fruit usually

an elongated shape. The first runners of the season, often flower and fruit the same year, and this gives the plant a somewhat "everbearing" character. It is the parent of a garden class known as Alpine strawberries. In ordiuary garden culture it is a failure,—but those who have a very rich piece of ground, in a cool shady spot, and one that never gets quite dry, love to grow them. The fruit is delicious, and though attempts to make them "pay" as a market crop have failed, the lover of good fruit in well cared for gardens often finds a place for them.

# BIOGRAPHY AND LITERATURE.

THE TRUE MAN.

No duty could overtask him,
No need his will outrun;
Or ever our lips could ask him,
His hands the work had done.
—WHITTIER.

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WEEDS.—The question, as to how the weed is to be defined, is still racking the brains of authors of dictionaries. The simplest definition, and to our mind the most accurate is, that a weed is simply a plant which grows where the cultivator does not desire. There is a vast difference between a weed and a wild flower.

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AMERICAN HORTICULTURE. — The French Government is publishing reports on the various points of interest gathered by its representatives at the Columbian Exposition. Horticulture, by M. Maurice Vilmorin, is No. 8, and is one of the most valuable of its kind ever prepared. M. Vilmorin had an eye for every item of novelty likely to interest French horticulture, not only at the exhibition, but all over the continent.

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THE BIGGLEBERRY BOOK.—The "Biggleberry Book" is a nice alliteration, but somewhat misleading. It is not a new kind of berry like the "wine berry," but a little book of 115 pages on the strawberry by Jacob Biggle, with 11 pages added in which the raspberry, gooseberry, currant, and other small fruits are touched on. It is published by William Atkinson, of the *Farm Journal*, and is full of valuable hints on strawberry growing.

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THE GOLDEN-ROD AND OTHER FLOWERS — Geo. W. Jacobs & Co., 103 S. 15th street, have, apparently for private circulation, a pretty story in verse of points suggested during a summer spent in botanizing at Black Barren Mineral Spring, in Lancaster Co., Pa. The pipsissewa, self-heal, vervain, anemone, black-eyed Susan, bouncing Bet, St. John's wort, mullein, jewell weed, cardinal flower, yarrow, and other popular wild flowers, have their stories prettily told as well as the asters and golden-rod.

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EXCLUSIVE OWNERSHIP OF LAND BY ANIMALS.—The pretty poem by Joaquin Miller in a former issue is pretty as poetry, and it is a pity to have to bring in cold prose to stand against it. But truth forces the observer of nature to admit that birds and other creatures apportion the earth among themselves just about as man does. A bear has his boundaries beyond which his fellow bear does not trespass with impunity,—the wild rabbit you see on your lawn in the moonlight, is the same innocent little creature you have been seeing every night all the summer time,—and even the robin that gathers the early worm for his breakfast from your garden, will show fight when another comes marauding on his preserve. Nor does this last a year only, for there is good evidence that the same bird will come back to the claim it staked off the year previous.

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HOLODISCUS DISCOLOR.—This is the name given by Maximowicz to a plant which was originally called *Spiræa discolor* by Pursh. There seems to be no good reason for the new name Holodiscus given by the Russian botanist,—and as the plant is just coming into cultivation it may be as well to start properly,—and we suppose *Spiræa discolor* will be its nursery name.

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SIR JOSEPH HOOKER.—In most life-occupations advancing age brings rest,—but the devotee of science finds pleasure in work as the years press their weight on him. They usually live long, as if even nature sympathized with those who deeply love her. Sir Joseph Hooker, now in his 74th year, is so deeply engrossed with the preparation of "Index Kewensis" that he has not taken a vacation for two years. Every page of this great work passes under his eye for proof-reading, and that not a single error should occur is remarkable.

SELFISHNESS IN PLANTS.—Some objection has been made, and apparently with some weight, that the modern doctrines of the evolution of plants, based on selfishness, is not by any means the rule prevailing in vegetation,—flowers, as well as members of the animal world, seem to be governed in quite as great a part by self-sacrifice as by selfishness. Though the struggle for life, as it is called, and the "survival of the fittest" must have something to do with the evolution of form, and must be necessary to the existence of plants individually, yet it is evidently not so to all. In human nature, selfishness is a trait which cannot be left uncultivated,—at the same time a large part of human nature finds just as much pleasure in little deeds which must come under the class of self-sacrifice, as in the pursuit of anything that may have relation to the struggle for existence. As an illustration of this point in plants, the production of turpentine by the Southern pine tree comes in. If the pine trees are left alone the production of turpentine is comparatively small; but when tapped and made to produce the turpentine for the benefit of man, it goes on producing without the tree in the least suffering. The annual product of turpentine by the Southern pine trees is some ten millions of dollars, which it seems to hand over to the uses of man without the slightest injury to itself. In no way can it be shown that the production of turpentine is a benefit to the pine tree.

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HARD NAMES.—A work on wild flowers has recently been issued by some one who thinks to do away with all the hard names in botany, and make everything so simple and easy to understand, that even a child may know what is being talked about. This is certainly a praiseworthy effort if it could be accomplished; but unfortunately the names which they consider hard, are not altogether hard to intelligent people, — no more so than those of names already accepted in the English language. For instance, in this book the word "cotyledon" is objected to as being very hard, and yet in the same book occurs the word nicotine, when referring to a poisonous element in tobacco,—the words oxygen, hydrogen, and nitrogen, are common occurrences,—and we are even told how some plants, by their odors, may have a good effect in warding off pneumonia. It is hard to understand how the word "cotyledon" can be any harder than any of these, or numerous others which might be cited. The agitation about these supposed hard names seems to be nothing more than what is popularly known as "a fad," which, like all other fads, must have its day.

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PRINGSHEIM.—One of the most eminent of modern botanists, Professor Pringsheim, died at Berlin, on the 6th of September. He was born at Wzieske, in Silesia, on November 30, 1823. He was professor of botany, at Jena, from 1864 to 1868,—but has since been living a private life, occupying his time in the study of plant life. It is in this line of botany that he achieved eminence. Until he demonstrated the fact it was not known that there were separate sexes in the lower orders of vegetation, as in flowering plants. He proved this in the Algæ. He also demonstrated that the green parts of leaves — *chlorophyl* — did not assimilate the carbonic acid gas from the atmosphere, as generally thought. He found the plasma itself performed the duty. He was the first to discover a leading use for the hairy parts of vegetation, by their power to make use of carbonic acid gas.

For a generation or two the popular idea of a botanist was one who loved to describe new plants or name old ones. Pringsheim first gave respectability to plant-life studies,—and the numerous physiological or biological schools in Germany are fashioned after the first which he founded.

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THE ORIGIN OF SPECIES.—It has frequently been noted that biological studies in America are far in advance of Europe. This is well illustrated by a recent address of Lord Salisbury, President of the British Association for the Advancement of Science. He contends that external conditions have very little to do with the evolution of forms. New forms or species, he thinks, are under some internal guidance; but this view has long been taken by prominent members of the American Association. What the exact law is which determines change, is not determined; but that the change itself is due to internal energy, is the belief of many prominent men of science in America. Natural selection plays a minor part.

# GENERAL NOTES.

ENLARGEMENT OF MEEHANS' MONTHLY.—To illustrate the flora of the United States in colors and in the highest style of art, seemed a stupendous undertaking. No wealthy publisher could be found to undertake it when the sudden death of the publisher of "The Flowers and Ferns of the United States" stopped that beautiful work. It did seem that a publication in which the colored plate absorbed half the subscription price, could never succeed. But there was such a wide field—botanists, artists, lovers of good libraries, horticulturists, and admirers of wild flowers—and especially horticulturists with whom Thomas Meehan & Sons have been so long in close sympathy. It is a pleasure to say that no enterprise in which the senior conductor or conductors have been engaged has produced so many ardent admirers, and the publishers are encouraged to enlarge the magazine by four pages, commencing with the January number. Considering the warm support from the horticultural class, it has been decided to give these additional pages to the "General Gardening" division of the work. The publishers believe that in MEEHANS' MONTHLY, America may boast of the most beautiful, instructive, and cheapest magazine of combined gardening, popular botany and natural history in the world. Only a wide circulation makes the colored plate possible; the publishers depend on aid from friends to make the enterprise more widely known.

THE LOVE OF MAN IN THE DOG.—Visitors to Netley Abbey, the home of Lord Byron, are struck by the beautiful monument erected on his lawn by the eccentric poet, to the memory of his faithful dog—the truest friend, he says on the inscription, he ever had. Queen Victoria is also said to have a tender place for her faithful dogs, and has a care for their graves. But there are few who ever had a faithful creature of this class, who can bear to think of it as "only a dog."

The thought has been suggested by a "catalogue of dogs," placed on our table by S. W. Smith, of Cochransville, Pennsylvania. Some two dozen representatives of the different classes and breeds of dogs are illustrated.

WHO OWNS A LINE TREE?—A case has been tried in Philadelphia as to the ownership of a tree on the line between two properties. It is a maple tree, two-thirds of the trunk being on one side, and one-third on the property of the one threatening to cut the tree away. This is presumptive proof that the tree started on the property of the one objecting to the tree's destruction. As the one desiring to cut it away, permitted its growth to extend within his line, he can probably have no say in the tree's destruction. The court favored this view; an injunction was granted restraining the cutting away of the tree. Only a joint agreement can cut the tree away.

CHARLES V. WHITTEN'S LILY HOUSE.—Mr. John G. Barker, Chairman on the Committee on gardens, reports to the Massachusetts Horticultural Society that this florist has a house devoted wholly to lilies. On the 13th of March last, a visit was paid to the gardens, when they found over a thousand pots, mostly the *Lilium longiflorum;* but a large proportion were of the variety of *longiflorum*, known as *Harrisii*. The bulbs are potted in October, covered for a short time with sifted ashes, and taken to the greenhouse in November. Great praise is given to the gardener, Mr. Cotter, for the superior skill he exhibits in cultivating these plants.

BEET SUGAR.—Just why more effort is not made in our country for the production of beet sugar is a mystery. There can be but little doubt that the yield, the profits, and the general adaptation of many parts of our country to successful beet culture are all in favor of its success. Can any one give the real reason for the apparent indifference of our agriculturists and capitalists to this great source of national revenue?